A FACTOR ANALYSIS OF TEACHER-PUPIL DYADS IN A FLORIDA HIGH SCHOOL

By
JESS PATTON ELLIOTT

A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL OF
THE UNIVERSITY OF FLORIDA
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF EDUCATION

UNIVERSITY OF FLORIDA
1970

ACKNOWLEDGMENTS

I wish to acknowledge with gratitude and thanks the many people who have assisted me in this effort Space permits explicit recognition for:

My wife, Sharon, and children, Jennifer, Merry Lynne, and Prudence for their encouragement, love, and patience;

My chairman, Dr Wilson H Guertin, whose counsel has been consistently beneficial throughout my graduate years,

My supervisory committee, Drs. Richard J. Anderson, William B Ware, and Willis A La Vire, for their guidance and interest,

The pupils and faculty of Riviera Beach High School and their fine principal, Clyde A Combs, who made the study possible, and

Nancy Jackson, Dr. Russell Clark, Tom McConnell, and the late Dr. Douglas Scates whose separate contributions to my education are deeply appreciated

TABLE OF CONTENTS

Page

Acknowledgements -- ii

List of Tables -- iv

List of Figures -- vii

Abstract -- viii

Chapter I Introduction -- 1

Chapter II Review of Related Literature ---------- 9

Chapter III Procedures -- 27

Chapter IV Pattern Identification -- 56

Chapter V Dyad Analysis -- 91

Chapter VI Summary and Implications ---------- 115

Bibliography -- 128

Appendix -- 132

Biographical Sketch -- 160

LIST OF TABLES

		Page
Table 1	Percentage of Pupils Classified by Heil et al (1960)	19
Table 2	Pupil Types Identified by Bush (1954) and Heil's (1960) Corresponding Types	23
Table 3	Category Limits Between Categories by Pattern by Category	53
Table 4	Similarity on Teacher Pattern	54
Table 5	Brief Description of Item Content of 39 Variables Used in Pupil Profile Analysis by Item and Analogous Teacher Variable Number	58
Table 6	Means and Standard Deviations for Selected Items N = 382	60
Table 7	Deviations of Model Patterns from Total Sample Item Means by Item, Total Sample Means, and Standard Deviations	63
Table 8	Weights of Model Patterns by Item	65
Table 9	Correlations Between Indexes of Pupil Similarity to Patterns Across Patterns	66
Table 10	Number of Extreme Profile Points and Extent of Convergence and Divergence on the Teaching Mechanics Variables by Pupil Pattern	70
Table 11	Variable Numbers, Weights, Ranges of Pattern Means, and Descriptors of High and Low Extremes on the Pattern 1 Profile Rank Ordered by Weight	72
Table 12	Variable Numbers, Weights, Ranges of Pattern Means, and Descriptors of High and Low Extremes on the Pattern 2 Profile Rank Ordered by Weight	75

LIST OF TABLES (continued)

Page

Table 13 Variable Numbers, Weights, Ranges of Pattern Means, and Descriptors of High and Low Extremes on the Pattern 3 Profile Rank Ordered by Weight 76

Table 14 Variable Numbers, Weights, Ranges of Pattern Means, and Descriptors of High and Low Extremes on the Pattern 4 Profile Rank Ordered by Weight 79

Table 15 Description of Item Content of 31 Variables Used in Teacher Profile Analysis and Analogous Pupil Variable Numbers 82

Table 16 Deviations of Model Patterns from Teacher Means in Standard Units, Pattern Weights, Group Means, and Standard Deviations by Item 83

Table 17 Weights Greater than ± 20 and Descriptor of Selected Variables Used to Contrast Teacher Patterns A and B 87

Table 18 Table for Adjusting Pupil Assigned Ranks in Relation to the Number of Teachers Ranked 95

Table 19 Teacher Sex and Indexes of Similarity, Correlation Between Pupil Indexes of Similarity and Preference Rating and Number of Cases by Teacher 96

Table 20 Frequency Distribution of 61 Correlations by Sign of Correlation by Sex of Teacher by Teacher Patterns of Best Fit for Teacher and Chi-Square Statistics 100

Table 21 Summary of Analyses of Variance of Pupil Preference Between Cells by Pattern Combination 102

Table 22 Cells Used in Analysis of Variance of High, Low, and No Congruence Groups 105

Table 23 Summary of Analyses of Variance of Pupil Preference Between Cells in A priori Groups by Pupil Patterns in Combination with Teacher Pattern A 107

Table 24 Summary of Analyses of Variance of Pupil Preference Between Cells in A priori Groups by Pupil Patterns in Combinations with Teacher Pattern B 108

LIST OF TABLES (continued)

Page

Table 25 Means, Standard Deviations, and Number of Dyads by Cell Categorized Using Teacher Pattern A and Pupil Pattern 4 109

Table 26 Cells Used in Analysis of Dyads Based on Teacher Pattern A and Pupil Pattern 4 Measurements 110

Table 27 Results of Scheffé Test of *Post-hoc* Comparisons Between the Ridge Cells and Other Cells and Between Groups of Cells Separated by the Ridge 111

Table 28 Means of Pupil Responses to Selected Items by Grade Level and Sex and Sample Size 146

Table 29 Standard Deviations of Pupil Responses to Selected Items by Grade Level and Sex 147

Table 30 Means, Standard Deviations, and Number of Dyads by Cell by Pupil Pattern with Teachter Pattern A 148

Table 31 Means, Standard Deviations, and Number of Dyads by Cell by Pupil Pattern with Teachter Pattern B 149

LIST OF FIGURES

Page

Figure 1 - Flowchart for Procedures to Obtain Data 33

Figure 2 - Flowchart for Procedures to Prepare Data for Analysis 34

Figure 3 - Flowchart for Procedures to Analyze Dyads 35

Figure 4 - Distribution of Scores of a Single Variable Around the Total Group Mean 125

Abstract of Dissertation Presented to the Graduate Council
in Partial Fulfillment of the Requirements for the Degree of
Doctor of Education
at the University of Florida

A FACTOR ANALYSIS OF TEACHER-PUPIL DYADS IN A FLORIDA HIGH SCHOOL

By

Jean Pattee Elliott

March, 1970

Chairman: Dr. Wilson H. Guertin
Major Department: Foundations of Education

A significant dimension of the educational process is the relationships between pupils and their teachers. The well established principle of individual differences clearly implies that pupils will react differently to other persons and events. It is not surprising, therefore, that teacher styles may be differentially perceived by pupils in the same classroom. Much of the literature on teacher effectiveness is based on the assumption that effectiveness is an attribute of teachers which is relatively unaffected by pupils with whom they work. Thus a teacher's effectiveness is seen as a composite effect on her pupils. This view treats disagreement among pupil ratings as a source of error. Its presence leads to reexamination of reliability of instruments rather than reexamination of basic assumptions about effectiveness.

This study was based on the assumption that effectiveness is a function of the dyadic relationship between the teacher and individual pupils. This study sought to identify pupil and teacher types and relate the obtained types to pupil preference ratings of teachers. Specifically, evidence was sought relevant to four questions:

1. Are there groups of pupils who have similar characteristics?
2. Are there groups of teachers who have similar characteristics?
3. Do pupils who have similar characteristics choose the same teachers as effective?
4. Do similar pupils, when making several choices, choose similar teachers?

All classroom teachers and a sample of pupils (grades 9-12) were used as subjects. They were given parallel instruments which concerned:

1. Selected psychological characteristics
2. Biographical characteristics
3. School-related attitudes
4. School-related outcomes (pupils only)
5. Pupil preference ratings for teachers (pupils only)

The pupil and teacher data were analyzed separately by a pattern analysis procedure which examined groups of profiles for recurring profiles. The first step of the analysis was the identification of profiles with similar shapes (shape families) through a transposed principal axes factor analysis with varimax rotation. Each shape family was examined for groups of profiles at different levels. The result was the identification of pattern profiles that were similar in both shape and level.

The analyses resulted in the identification of two teacher patterns and four pupil patterns. The patterns were described in terms of their manifest content. Teacher type B was more directive than teacher type A. Pupil types 1 and 3 were opposites while pupil type 4 best reflected the attitudes of the pupils as a total group. The major characteristic of pupil type 2 was that it was generally found submerged between other patterns. It is therefore difficult to describe.

The analysis of the relationship between pupil patterns and pupil preference for each teacher taken individually resulted in significant correlations only a little more frequently than might be expected by chance.

The analysis of the relationship between pupil and teacher patterns and preference by means of an analysis of variance indicated that pupil preference is affected by pupil-teacher dyadic relations when pupil pattern 4 and teacher pattern A are used as the bases for categorizing dyads. Further analysis using the Scheffé method of post-hoc comparisons showed that pupils whose profiles were similar to pattern 4 did not differ from pupils whose profiles differed from pattern 4 in their preference for type A teachers. However, as teachers and pupils diverge from these patterns a lack of preference is observed.

The study was successful in identifying pupil and teacher patterns. However, conclusions about the specific characteristics of the pupil and teacher types should not be drawn at this point. Continued use of the methods of analysis as outlined in this study should provide stable patterns.

CHAPTER I

INTRODUCTION

The continuing existence of our society is predicated on the ever-increasing successfulness of the educational enterprise which provides the manpower to manage our society. This enterprise creates or facilitates the development of the vast majority of the knowledge which is recycled into the operation of society.

Because of the central importance of the educative process in providing for our future society, it is not surprising that much effort has been placed in the service of identifying "good" educational practices. Efforts directed toward systematically examining the relationships between practices and their apparent outcomes have absorbed the energies of educational researchers throughout the twentieth century. While the fruits of these efforts have been inconsistent, in that some strides have been made while in other areas little success has been noted, the underlying assumption has remained substantially unchallenged. This assumption is: Learning is a process by which individuals, through interaction with others, secure alternative choices of action and obtain information to assist in making these choices. The interactive dimension of the process is most easily examined and subjected to change by the educational enterprise. It, therefore, constitutes a logical point on which to focus change and a potential intervention in the process of learning.

This assumption has led to a vast amount of research effort in all aspects of instruction. For example, the question of teaching effectiveness has been examined repeatedly over the past sixty years (Ryans, 1960; Gage, 1963). From the work of Meriam (1906) to the present, certain attributes have appeared to correlate with teacher-rated, student-rated, or supervisor-rated effectiveness. It has become increasingly clear that consistent though weak relationships do exist between "effectiveness" and observable characteristics of teachers.

The problem of teacher effectiveness is important to the educative process. A fundamental understanding of the significant variables associated with teaching effectiveness would pave the way to better teaching and greater utilization of pupils' capabilities. This search can lead in two rather different directions. One, educators can continue to identify specific behaviors which are associated with effective teaching. Through this process behaviors are identified, analyzed, and finally taught to prospective teachers in order to improve their abilities to teach. Two, educators can attempt to isolate characteristics of both pupils and teachers which can be shown to facilitate the interaction between the pupil and teacher in some way so as to increase learning. Such a technique is implicit in the philosophy of individual differences. This philosophy suggests that a given teacher will be effective to varying degrees with the pupils in the classroom because the pupils expect and need different kinds of treatments. These differences begin to be evident in children while still in their infancy.

Current grading practices take this philosophy into consideration. However, the lack of pertinent information forces the grouping of children into sections with little regard for the potential interaction problems until the problems surface in a disruptive way. Typically school personnel assign children to sections on the basis of intelligence, prior achievement or the haphazard technique of dividing the total pupils among the available teachers.

The measurement of teacher effectiveness has historically been an averaging process which assesses the teacher's impact across all pupils of a given class. Such a procedure presupposes that each judge (pupil) who rates the subject (teacher) with respect to the characteristic of "effectiveness" is using the same framework for the rating. Summated scores for teachers based on all pupils in their classes permit teachers to obtain the same total scores while the arrays of pupil scores within the classrooms might be very different. The availability of a measure of dispersion might signal these differences but traditionally these are not reported. Medley (1961) stated that the averaging effects of a summated score tend to compensate for over-generosity of some students and hostility of others. By the use of such reasoning, he treated individual differences as "error," when they may have represented a legitimate sampling of the characteristic of effectiveness.

Effective teachers, as identified by existing measures, tend to be teachers who have a broad appeal to many pupils and who elicit hostile reactions from very few. While such characteristics are probably valid in identifying teachers who are effective with groups of pupils, attempts to use these measures to determine effectiveness with pupils as individuals are less satisfactory.

The study of teacher-pupil interaction can proceed using two very different approaches. The first approach was described and is concerned primarily with groups of pupils. It is based on the implicit assumption that interactions between teachers and pupils are essentially similar and that variation is, from a research standpoint, best considered "error." The acceptance of such a position enables the measurements to be treated as estimates for which individuals within groups of pupils constitute replications. As more individuals are added, the standard error of measurement decreases.

The second approach is based on the assumption that interaction between teachers and pupils can be expected to differ because the needs and learning styles of the pupils differ. Pupils have frequently been given essay assignments on the topic, "My Favorite Teacher." After reading a group of these, one is keenly aware of the variations in pupil approved behavior by teachers. For example, the tendency to grade with no regard for anything but the exam responses is praised by some pupils as being "fair." The counter-tendency on the part of teachers to be influenced by circumstances, i.e., illness, presence of other competing activities, or a death in the family, is equally praised by another group of pupils. Differences in style can be seen in the ways teachers present material, operate their classrooms, and interact with pupils. Each of these activities are viewed differently by the 30 or more pupils in the classroom. The literature in the second chapter demonstrates the variety of variables which have been empirically shown to affect the effectiveness of teachers with pupils

From a research standpoint interpupil variation becomes a major, if not the major, concern. The acceptance of this position creates problems with the traditional use of scales, tests, and other measurement devices because variation among pupils' responses is expected. This expectation differs from the traditional one where different pupils are viewed as replications of the same measurement for this variation is confounded with potentially real differences which are associated with the interaction between the pupils and teachers. On the one hand, the judgements can be considered randomly distributed around a mean which reflects the "true" value. On the other hand, the variation is a mixture of the measurement error described above and actual differences in the nature of the relationship between a given teacher and each of the various pupils. The variance from both sources is hopelessly confounded.

Taken to a logical extreme, each pupil is different and, therefore, not comparable to any other pupil regardless of the circumstances. To take such a philosophical position is not productive because of the necessity for grouping pupils while they are consumers of the educational enterprise. It is not feasible for the researcher to take the position that pupils are not comparable on some basis because such a position forces the researcher to cease attempting to measure pupil characteristics or to assume that his measures are both reliable and valid. One of these assumptions is mandated because no error of measurement can be computed from one case and the use of repeated measures over time raises too many additional methodological questions to be an attractive alternative.

A potential strategy for avoiding the pitfalls of these two extremes is through the identification of groups of pupils who are grouped on an empirical basis. These groups would be demonstrably relevant to the question under consideration rather than on extraneous factors such as membership in a given homeroom or grade level. If through a series of studies researchers could identify some of the crucial elements which promote or inhibit the development of an adequate relationship between pupil and teacher, then pupils could be grouped on a basis which would facilitate rather than hinder pupil-teacher involvement.

The literature has reflected a need for this type of approach (Rabinowitz and Travers, 1953). The few studies which have used significant elements of the approach are reviewed in the second chapter. Specific interest in relatively sophisticated approaches has resulted in part from widespread availability of second-generation computers. The capability of these computers to handle large quantities of data with high speed and reasonable costs has permitted examination of pattern identification techniques. The current interest and the availability of high-speed, low-cost data processing, in part, made this research study possible.

This study will attempt to identify the existence and nature of patterns of pupils and of teachers which are based on selected psychological and biographical data. The relationship between pupils who are characteristic of each of the pupil patterns and pupil-perceived teacher effectiveness will be examined if patterns are identified. The study is designed to explore selected characteristics of pupils and teachers of a medium-sized urban public high school located on the Florida East Coast. The following questions will be considered:

1. Are there groups of pupils who have similar characteristics, as determined by an inventory constructed for this study?
2. Are there groups of teachers who have similar characteristics, as determined by an inventory designed to parallel the inventory constructed for pupils?
3. Do pupils who have similar characteristics choose the same teachers as effective?
4. Do similar pupils, when making several choices, choose teachers who are similar in type?

Within the context of this study, the phrase 'teacher-pupil dyads' is used to denote the relationship between the teacher and the individual pupil. There are many relationships found within a classroom. The principal ones include the relationships between:

1. The teacher and the pupils collectively.
2. The teacher and the pupils in small groups.
3. The teacher and the pupils individually.
4. Each pupil and the other pupils collectively.

5. Each pupil and the other pupils in [illegible]

6. Each pupil and teachers

In each situation the pupil is functioning in a different role. The pupil's role in the classroom is a combination of at least these six relationships. This study is designed to explore elements of three and six. The use of "teacher-pupil dyad" or "teacher-pupil dyadic relationship" signifies the interaction between the characteristics of the individual pupil and teacher involved in the relationship. Operationally the term will be defined in terms of measurements. These measurements will relate to pupil-perceived effectiveness and several indexes of similarity to six empirically established patterns.

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature has been reviewed in three parts. The first deals with teacher effectiveness as a general area of concern focusing on the extent to which studies have succeeded in defining the variables associated with effective teaching. The second part deals with studies which relate pupil characteristics to teacher characteristics. These studies have laid the foundation for formulating the current study. The first portion deals with research methodology of profile matching and pattern identification. In addition, the third part identifies the specific methodology used in the current study.

Review of Studies of Teacher Effectiveness

The purpose of this section is to abstract from the more than 1,700 published studies of teacher effectiveness selected studies which illustrate the types of variables which have been examined to date. This section is further designed to demonstrate the diversity of variables which have been shown to affect teacher effectiveness and thereby indicate the limitations imposed by researchers who arbitrarily selected a small number of variables for study while ignoring the others for which existing empirical evidence demonstrates a need for concern. The most complete review of the research concerning teacher effectiveness is found in the Handbook edited by Gage (1963), reviewing the literature through 1959. The more recent research studies, those reported between 1960 and 1967, are assessed and reported in the "Teacher Effectiveness" section of the Encyclopedia of Educational Research (Flanders and Simon, 1969). The amount of research effort which has been invested in the study of teacher effectiveness and the relative lack of success in defining the relevant dimensions might suggest that progress toward solution will come from the incorporation of a large number of potentially useful variables which have been deliberately selected rather than through the selection of a small number of variables. The studies reviewed below incorporate relatively few variables in any one study but collectively they examine many variables.

Through the 1940's there was little agreement about the nature of effective teaching even though Domas and Tiedeman (1950) identified and annotated more than 1,000 studies which had been reported in the first half of the century. Since that time there has been a growing emphasis on behavioral measures of criteria of teacher effectiveness such as measures of change, gain, or growth in student achievement (Mitzel, 1960). Mitzel reviewed studies of teaching effectiveness for the purpose of examining the criteria being reported and categorized the criteria into three classes product criteria, process criteria, and presage criteria. Product criteria may be defined as changes in the behavior of pupils. An example of a product criterion of teaching effectiveness is measured pupil achievement gain. The other classes of teacher effectiveness criteria discussed by Mitzel are several steps further removed from the ultimate criteria and require additional assumptions concerning the intervening steps. For example, process criteria refer to aspects of teacher and pupil behavior which are believed to be worthwhile in their own right, such as nature of teachers' practices, the ability of the teacher to maintain rapport with students, and the degree to which teachers individualize instruction. The use of such criteria requires further examination of the assumption that good teacher-pupil rapport does in fact produce pupils who learn more subject matter, who are better problem solvers, who are better adjusted socially, etc. Presage criteria refers to criteria based on precedent and "common sense." Thus, it is assumed that a well-adjusted teacher of good character and high intelligence is a more effective teacher.

The advantages of product criteria of teacher effectiveness have been discussed by Rabinowitz and Travers (1953) and Remmers (1952, 1953). Generally, the advantages of such criterion measures are their greater reliability, objectivity, and reproducibility, and their freedom from bias commonly associated with such measures as principals' ratings of teacher effectiveness. Rabinowitz and Travers have pointed out the problem of differential effects on pupils because of the variation among pupils. They have suggested that the study of the individual child and his characteristics is going to be essential. The ultimate criterion may be the ability of the student to function as an adult member of society. It is assumed that students who exhibit superior achievement in subjects such as reading, arithmetic, social studies, etc., will be better able to function in that capacity. Product criteria are of greatest relevance to the present study since pupil behavior as reported in the form of expressed opinions and observed performance are basic to identification of pupil types. Studies utilizing presage and process criteria were reviewed by others (Domas and Tiedeman, 1950, Barr, 1948, Fattu, 1962, Howsam, 1960). The studies will not be reexamined in this review. The studies reported below focus on the use of the product criteria.

Mitzel and Medley (1957) examined the reading achievement gains of the pupils of 49 elementary school teachers in the New York City public schools. Equivalent forms of the California Reading Test were administered in the fall and in the spring. A pupil's reading gain score was the difference between his end-of-year score and the score predicted for him on the basis of his performance at the beginning of the year. This procedure provides a measure of control for differences in previous reading achievements among the pupils which the researchers considered superior to the standard post-test score minus pre-test score equals gain. Significant differences were obtained among teachers in the reading gains achieved by their pupils which could not be attributed wholly to differences among schools, to pupils' ability or previous achievement.

Medley and Mitzel (1959) attempted to relate five measures of teacher effectiveness to three dimensions of teacher behavior. The five measures were: (1) pupil reading growth, (2) pupil growth in group problem solving skill as measured by the Russell Sage Social Relations Test, (3) pupil-teacher rapport as measured by a short pupil questionnaire, (4) supervisor ratings, and (5) teacher self-ratings. The three dimensions of classroom behavior which were identified as Emotional Climate, Verbal

Emphasis and Social Organization were derived from the OScAR observational technique. The measured pupil gains in reading achievement and group problem solving skill were found to be unrelated to the measures of teacher and pupil classroom behavior. The measure of teacher-pupil rapport was found to be associated with the behavioral measure of emotional climate. Supervisors' ratings correlated positively with the friendliness of the teachers' classrooms, but did not correlate with pupil growth in reading or problem solving skill. These latter findings emphasize some of the difficulties associated with supervisors' ratings as a measure of teacher effectiveness.

Silberman (1957) attempted to determine the relationship between pupil gains in reading achievement and differences among teachers in their frequency of using praise and reproof on pupils whom they taught. A measure of teachers' praise and reproof was obtained by means of the Withall observational technique (1949). The index of praise provided by the teacher was the number of "supportive" statements emitted by her in the classroom. The index for reproof was the number of "reproving" statements made by the teacher as recorded by classroom observers. The two indexes were correlated with pupil gains in reading achievement which was adjusted for the pupil ability and previous reading achievement. No significant correlations were obtained. The lack of significant relationships in this study suggests that the effects of teacher praise and reproof on pupil learning may be considerably affected by other differences among teachers and pupils. For example, interactions may exist between teacher praise or reproof and pupil personality variables such as anxiety, achievement need, affiliation need, etc., which affect the extent of pupil learning.

Amidon and Flanders (1961) studied the effects of direct and indirect teacher influence on dependent-prone pupils taking a course in geometry. The study was designed so that each combination of direct (vs. indirect) teacher influence and clear (vs. unclear) goals was examined. Pupils in the direct teacher influence treatments reported the teacher as "telling me what to do," "firm and businesslike," and "making plans for us." In the indirect treatment, pupils reported "finding out what we know," "relaxed and cheerful," "letting us make our own plans," "using our ideas" and similar perceptions that were opposite of the direct pattern. No differences were found between the clear goals and the unclear goals treatments *per se*. Gains in geometry achievement indicated that dependent-prone pupils learned more in the classrooms in which the teachers gave fewer directions, less criticism, less lecturing, more praise, and asked more questions which increased the pupils' verbal participation. One implication of this study is that closer supervision through the use of direct influence, a frequently applied antedote to lower achievement, may be more harmful than helpful for dependent-prone pupils.

Cogan (1958a, 1958b) reported on an investigation of relationships between teacher classroom behavior as perceived by pupils, and pupil performance on tasks. The study involved 33 teachers and 987 eighth-grade pupils as subjects. Three dimensions of teacher classroom behavior were measured by a questionnaire administered to pupils. Inclusive teacher behavior consisted of the extent to which the teacher served as a cue to approach behavior tendencies on the part of pupils such as "liking." The inclusive behavior dimension included integrative, affiliative, or nurturant teacher behaviors. The preclusive dimension of teacher behavior indicated the extent to which the teacher was perceived by pupils as a cue for anxiety or avoidance, and included dominating, aggressive, and rejecting teacher behaviors. The conjunctive dimension indicated the level of the teacher's demands on his pupils, his ability to communicate with his pupils, and his competence in classroom management. The two dependent variables in the study were the pupils' estimate of the amount of work required of him, and the extent to which he engaged in self-initiated work. The data were analyzed in two ways. The "perception" analysis examined within-class correlations between the three dimensions of teacher behavior and the two measures of pupil work output. The "trait" analysis examined averages of the measures among the classes.

The results of the "perception" analysis failed to confirm the hypothesis that preclusive teacher behavior as perceived by pupils would be negatively related to the amount of required and self-initiated pupil work. The analyses of the inclusive and conjunctive teacher behavior dimensions, however, confirmed the hypothesis that these dimensions would be positively related to the amount of required and self-initiated pupil work. Other outcomes reported were that principals' ratings of teacher behavior generally did not relate significantly to the pupils' perceptions of teacher behavior, but the teachers' estimates of the pupils' required and self-initiated work were found to correlate positively and significantly with the pupils' own estimates on these variables.

The results of Cogan's "trait" analysis (e. g., the among-groups correlations between the average scores on the three teacher behavior dimensions and the average scores on the measures of required and self-initiated pupil work) indicated that teacher inclusiveness as perceived by the pupils was positively and significantly correlated with the pupils' estimates of their required and self-initiated work output. Cogan's study supports the hypothesis that teachers who are seen by pupils as more approachable and likeable require more work of their pupils, and generate more self-initiated work on the part of their pupils.

Christensen (1960) studied relationships between teacher warmth and permissiveness, pupil affect-need, and pupil growth in achievement. The measures of teacher warmth and permissiveness were obtained from a questionnaire concerning various classroom practices administered to pupils in the fourth and fifth grades. The measures of teacher permissiveness and pupil affect-need did not relate significantly to pupil gains in vocabulary and arithmetic achievement.

Soar (1967, 1968) examined teacher effectiveness in terms of observed classroom behavior and selected pupil outcomes. Data from 55 elementary classrooms which included observation of teacher activity (Amidon and Flanders, 1961) and pupil measures were used to relate pupil gains in achievement, creativity and anxiety to teacher behavior. Using a presage-process-product model as suggested by Mitzel (1960) resulted in few relationships between presage-process links and process-product links that appeared meaningful. Soar's (1968) major conclusions were that (1) "the strategy of approaching the problem of teacher effectiveness simultaneously at the point of presage-process link and at the process-product link, with the expectation that the two sets of findings can be integrated to say meaningful things about the presage characteristics which should lead to given product changes on the part of pupils, seems at best a doubtful strategy" (p. 7), and (2) 'numbers of characteristics of the teacher as indicated by these presage measures do relate to product changes in pupils in ways which the process measures do not reflect" (p. 8).

While the number of studies reported above is small in comparison to the number of studies reported in the literature, they are representative of the group in that they each isolated a small number of variables for examination and ignored the others. An exception was Soar's study. However, while he incorporated a wide range of measures, his design is focused on the teacher's interaction with the pupils in a manner which treats interpupil variance as error. The combined result of all the studies is the demonstrable fact that pupils who differ on measurable variables respond differentially to their teachers. In addition, teachers who differ on measurable variables respond differentially to their pupils. The many relationships which have been demonstrated to date certainly are interacting among themselves in normal classroom situations. As a result of these interactions there is probably not a single or small number of behavioral patterns which can be characterized as "effective" with all pupils because any behavioral pattern probably differentially affects different types of pupils.

Review of Studies Which Interrelate Pupil Types and Teacher Types

The studies reviewed in the previous section seek to establish relationships between variables based on an implicit assumption that each member of the group is similarly affected. Variation is considered and treated as a source of error. The studies reviewed below take a fundamentally different approach. Each one presupposes that there exist identifiable types of pupils and/or teachers in the sample of subjects. The utilization of a typing procedure precedes the attempt to identify relationships, such as teacher effectiveness as measured by pupil achievement gain and its association with "controlling" teacher behavior.

After reviewing more than 300 studies related to pupil-teacher relations which included an exhaustive search of the literature since 1964, only four studies were found that utilized a typing procedure in the initial analysis. These four studies are reviewed below.

Lewis (1960), using college students and their instructors, attempted to explore the pupil-teacher dyadic relationship with respect to teaching effectiveness. He analyzed biographical data and the ten scales of the Guilford-Zimmerman Temperament Survey in an analysis of variance design. The few sizeable relationships which he obtained can be explained by chance. He states in his conclusions that the "general lack of significant results in the study must be noted as the major finding" (p. 34). His study suffers from three serious weaknesses: (1) the use of highly restrictive samples which appeared to be biased in their selection, (2) small number of subjects, and (3) the attempt to test each of 100 biographical items separately for statistical significance.

While Lewis used college students, Heil et al (1960) turned their attention to elementary school pupils. Their study centered around the use of patterns and profile matching, rather than the pairing of individual pupils with individual teachers They dealt with the problem of achievement gain rather than pupil ratings of teacher affectiveness. Heil et al found no interaction effect on achievement for certain types of student and certain teacher-types, while other combinations showed marked interaction. They demonstrated pupil-type and teacher-type interaction effects in the areas of friendliness among students, hostility, and children's feelings among a large group of students.

Of the 769 children involved in the study, 75 percent, or 580, were classifiable into one of the four groups given in Table 1

TABLE 1

Percentage of Pupils Classified
by Heil et al (1960)

Pupil Type	Number Classified	Percentage Classified
Conformers	203	35
Opposers	169	29
Waverers	75	13
Strivers	133	23

The four pupil types identified were conformers, opposers, waverers, and strivers The conforming pupils were characterized by the internalization of and conformity to adult standards, a high social orientation, strict control of impulses, and an emphasis on more mature behavior

The outstanding characteristics of the opposers were disturbed authority relationships, oppositional tendencies, pervasive pessimistic tone, intolerance of ambiguity, and a disappointment in self and others. The waverers were characterized by a high level of anxiety, ambivalence, fearfulness, and indecisiveness. Finally, the strivers were characterized by a strong attitude of striving, a drive for recognition with regard to school achievements, and exhibitionistic needs.

The three teacher types which they identified were turbulent, self-controlling, and fearful teachers. The turbulent teacher was described as one whose aggressive and sexual impulses are likely to be evident, who had a low need for approval and acceptance by others, and who showed a high preference for thinking in the mystery, life-death-universe and fantasy categories. She was described as unmethodical and verbally aggressive in social interactions. Such a person would most likely irritate her peers, and experience frequent clashes with authority figures. The turbulent teacher had a high preference to be independent of direction by authority figures and a need to do uninhibited and unconventional thinking.

In contrast to the turbulent teacher, the self-controlling teacher was described as feeling most secure when things were running smoothly, and evidenced a high preference for being methodical. The self-controlling teacher appeared to spend a considerable amount of energy keeping her impulses under control, and was more concerned with what other people thought of her, and less introspective. The self-controlling teacher also appeared to be submissive in relation to authority figures, but would tend to act in an authoritarian manner toward her subordinates

She would be more likely to react to others with terms such as "good" and "bad" and would probably be better liked by her peers than the turbulent teachers.

The third teacher type, or fearful person, was described by Heil as one who fears many aspects of the environment. Such a person would evidence a fear of sexual impulses, a fear of being alone, a fear of mystery, and feelings of dependence and helplessness. A fearful teacher would tend to reveal rigidity of thinking in the face of uncertainty, and a tendency to be consistently protecting herself in her relations with others.

Strivers and *waverers* were not found to be significantly influenced by the teacher-types, while *opposers* and *conformers* were. Most of Lewis' subjects in the study described earlier were probably *strivers* since they were all *juniors* or *seniors* in college and were willing to take part in the study.

Heil further found students of self-controlling teachers to be consistently higher in achievement gain (corrected for IQ) than were the students of either the *turbulent* or *fearful* teachers.

Wallen (1963, 1964) sought to replicate Heil's findings using 48 teachers and 656 pupils. The several pupil- and teacher-types were identified on the basis of personality measures very similar to Heil's. Wallen's results failed to confirm those reported by Heil.

In the Heil study, the striver pupil group was found to show greater academic gain. In Wallen's study, the striver-conformer pupils reflected little or no superiority over the other pupil groups with respect to achievement gains and only a sporadic superiority in creativity performance. Heil's self-controlling teachers were generally a better influence on all children in their study, whereas in Wallen's study, the fearful teacher seems to have been most effective.

The reason for the resulting differences is not easy to assess. Wallen suggested several differences between the two studies which might account for the differing results. Wallen did not exactly replicate Heil's method for categorizing teachers and pupils. Instead he employed a set of personality measures for teacher-pupil selection which seemed to offer the same information. Pupil measurements differed also. Wallen used the Sarason Test Anxiety scale, and three scales specifically prepared for pupils in that study. In addition, the striver and conformer pupil-types were combined since there was no way of differentiating them on the criterion personality scales. These differences between the two studies may well explain the general failure of Wallen's study to demonstrate the significant teacher-pupil interactions that the Heil study suggested.

Bush (1954) sought to classify pupils and teachers in a study begun in the early Forties. In his chapter, "Matching Teachers and Pupils," he described his procedure. He classified just less than half of the initial 650 pupils in the study. The distribution is given in Table 2.

He found that among the half of the pupils he was able to classify, the teacher preferences tended to fall into three distinct groups. Like the previously mentioned study by Heil, the results supported the existence of meaningful types.

Except for the four studies reviewed above, the literature on

TABLE 2
Pupil Types Identified by
Bush's (1954) and Heil's (1960) Corresponding Types

Types Identified by Bush Percent of Initial Group	Type	Heil's Corresponding Classification
10 - 15	Type A	Strivers, Conformers
20 - 25	Type B	Opposers
3	Type C	None

teacher-pupil relations is not relevant because the other studies do not precede the search for relationships with the identification of types. Ryans (1960) looks at the complexity of the effectiveness question but does not deal with it in terms of pupil-teacher dyads. In an early chapter dealing with the theoretical basis of the teacher-pupil relationship, he spells out the "dyadic sequence," but does not analyze the data reported in his book in this manner. He states on page 126, "All comparisons refer to group data, to group means and measures of variability ; these data must be interpreted in the light of probability."

Flanders' study (1965), one of the more recent major studies on teaching effectiveness, concluded that teacher influence and pupil attitudes make a difference in class achievement means, but he did not analyze individual achievement gain.

Review of Pattern Analytic Techniques

The traditional methodology for examining the relationship between pupils and teachers is illustrated by Amidon and Flanders (1961) which was described in the first section of this chapter. Using this approach pupils are measured and grouped with respect to a pre-existing pupil characteristic about which a relationship with some condition is desired. Measurements are then taken with respect to the condition and Analysis of Variance or Chi-square is typically used for analytic purposes. A different methodology is basically correlational in nature. This methodology assumes that the interrelationships among variables better account for the pre-existing characteristics which are to be studied than do the variables individually. This methodology therefore seeks to identify similar configurations of variables with the data set which indicate similar individuals, conditions, etc.

The literature contains many descriptions of techniques which were developed to identify recurring patterns of measurements for individuals who are thereby judged to be similar. Each one must deal with three basic questions. These questions as stated by Nunnally (1962) are:

1. How is relative similarity of pairs of profiles to be measured?
2. How to discriminate among typical profile (patterns) of several groups?
3. How are profiles to be "clustered" into homogeneous groups?

The proposed methods range from simple visual inspection (Thieson, 1952) to complex factor analytic techniques (Guertin, 1966). The methods which have been proposed are essentially correlational or distance measures. The correlational methods include the Pearson correlation (Stephenson, 1950), rank order correlation (Holland, Krause, Nixon and Trembleth, 1953, Kelly and Fiske, 1951, Kendall, 1948). The techniques which are essentially distance measures include Cattell's (1949) coefficient of pattern similarity, sum of absolute differences (Ellese, 1947), sum of squared differences (Mahalanobis, 1936), Pearson's (1928) coefficient of racial likeness (Rao, 1952), Osgood's and Suci's (1952) technique which is similar to the coefficient of racial likeness (Sokode, 1954), du Mas' (1949) coefficient of profile similarity (Kelly and Fiske, 1951), intraclass correlation (Haggard, 1958, Webster, 1952), typal analysis (McQuitty, 1961a, 1961b, 1963), and the technique developed by Sawrey, Keller, and Conger (1960). Cronbach and Gleser (1953) and Helmstadter (1957) have discussed and compared many of these methods.

Guertin (1966) developed a procedure for analyzing a set of profiles for subjects whose profiles are similar as measured by a correlational approach and then separately analyzed each of the shape families identified in the first step for differences between the distance for points along the profile. He developed an automatic computer package to perform all steps of the analysis. His technique combined in a complex manner the correlational and distance aspects of profile similarity. The identification of shape families essentially provides the similarity capability of the correlational techniques described earlier. The subsequent analysis of level (or elevation) differences utilized the basic principle behind the development of the distance techniques without their major disadvantage. The disadvantage of the distance technique is that moderately sized indexes of similarity can result from two similar profiles at different levels or from two dissimilar profiles at the same level. By eliminating the dissimilar profiles in the correlation step, the distance phase of the analysis can proceed in the knowledge that profile differences are primarily the result of elevation differences. Through the use of the two-phase technique the recurring profiles which define the patterns are similar both in shape and level.

CHAPTER III

PROCEDURES

The literature reviewed in the preceding chapter documented the apparent importance of the relationship between pupils and teachers because it affects pupil progress through school. The review also pointed out that very little empirical evidence is available to define the impact of the pupil-teacher dyadic relationship. In order to examine this relationship answers to the four research questions stated on page 7 were sought. To this end procedures and instrumentation were developed and data were gathered and analyzed.

General Statement of Procedures

The procedures were designed to permit data collection from a total group of pupils grades nine through twelve. An instrument was developed using selected psychological scales and other kinds of information which were considered by the investigator to be potentially useful in "typing" pupils. A parallel form was developed for the teachers of the pupils. Both the pupil and teacher forms were pilot tested on a small number of subjects similar to the prospective respondents in order to improve the instrument design.

The pupil instrument was designed to be administered by the homeroom teacher and to require a minimum amount of explanation. It was to require no more than 90 minutes for completion by the typical high school pupil The completed instruments were returned to the investigator by a pupil from the class so that no teacher would have the opportunity to examine the responses

After the responses of a sample of the pupils were scored and additional selected information for those pupils was obtained from the school system's central office, the data were coded, tallied, and punched for electronic data processing The answers to each of the following research questions were sought

Question 1 Are there groups of pupils who have similar characteristics, as determined by the inventory?

An answer to this question resulted from an analysis of 96 pupil profiles by means of a computerized procedure (Guertin, 1966) which sought and identified modal patterns existing in a set of data The pupil data were analyzed for patterns The resulting patterns were examined and contrasted with one another in terms of manifest content

Question 2 Are there groups of teachers who have similar characteristics as determined by an inventory which parallels the inventory constructed for pupils?

An answer to this question resulted from th analysis of the 51 teacher profiles in the same manner as described in the section related to Question 1

Question 3. Do pupils who have similar characteristics choose the same teachers as effective?

An answer to this question resulted from relating each pupil's similarity to the pupil patterns and his ranking of his teachers with respect to their effectiveness. Each teacher was analyzed separately. If a teacher were ranked consistently high by pupils most similar to one pattern, then a significant positive correlation would result from correlating the "teacher effectiveness" rating given by each pupil for each of his teachers with the measure of similarity between the pupil's profile and the pattern under consideration. A negative correlation would result if the teacher were ranked consistently lower by pupils who had close fits with a given pattern. Four Pearson correlations, one for each pupil pattern, were generated for each teacher.

Question 4. Do similar pupils, when making several choices, choose teachers who are similar in type?

An answer to this question resulted from categorising the measures of similarity into quartiles and obtaining all the combinations when the degree of pupil similarity varied across each of four pupil patterns independently of the two teacher patterns. Such an analysis results in the creation of 128 cells (2 teacher patterns x 4 pupil patterns x 4 degrees of similarity on the teacher patterns x 4 degrees of similarity on the pupil patterns).

The mean ranks given by the pupils in each cell were analyzed to determine if there were systematic changes occurring. They were analyzed by computing a one-way analysis of variance of the mean ranks across cells. With the identification of a significant ($p < .01$) difference between the variation among the 16 means and variation around the 16 means, the nature of the difference was sought through the use of Scheffe's (Hays, 1963) method for making post-hoc comparisons among means.

Selection of Subjects

The subjects used in this study were pupils and teachers of a medium size urban Florida public high school spanning grades nine through twelve. All teachers agreed to participate. They responded to the teacher instrument in small groups during their free period in a regular school day. The investigator met with each group, explained the purpose of the study, and answered questions about the study, the instruments, and research studies in general.

Three days after the teachers responded to their instruments the teachers passed out the pupil instrument to the pupils in their homerooms. The pupils used their homeroom period and approximately 40 minutes of the first period to complete the instrument. The pupils were specifically informed that the completion of the instrument was voluntary, that staff members of the school would not see the completed forms, and that the instrument was part of a research study being carried on at the University of Florida.

Approximately 2 percent of the pupils failed to turn in a substantially completed instrument. Approximately 4 percent of the pupils were absent so that 94 percent of the pupils enrolled in the school responded. No attempt was made to obtain responses from the absent pupils because special testing sessions would be disruptive to the school schedule. A stratified random sample totalling 400 pupils was drawn. The sample included 50 boys and 50 girls from each grade level, 9 through 12.

The completed inventories were sampled because of the excessive amount of effort required to score and prepare each inventory's responses for data analysis. Approximately one-third of the inventories were used so that only a minimal decrease in precision occurred while the amount of scoring and preparatory effort was decreased to one-third.

Detailed Description of Procedures

The study sought to examine relationships between pupils and teachers with respect to pupil-perceived effectiveness. The following sequential steps were undertaken to examine the relationships:

1. An instrument constructed for high school pupils

2. A parallel form constructed for their teachers.
3. The instrument field-tested
4. An appropriate school selected for study
5. Pupils and teachers responded to instruments.
6. Other information gathered at the central office
7. Responses scored and data prepared for electronic data processing
8. Pupil and teacher patterns identified
9. Pupil-teacher dyadic data generated and related to patterns
10. Appropriate analyses made to answer research questions

In order to delineate clearly the procedures a flow chart was developed. The flow chart was divided into three sections which are presented in Figures 1, 2, and 3. Figure 1 presents the sequence of activities which were involved in the development, administration, and scoring of instruments. These activities include everything prior to coding and keypunching of the data. No analyses related to the four research questions are found in the sequence of activities outlined by this table. Figure 2 represents the sequence of activities which are involved in the translation of pupils' and teachers' responses into data appropriate for examining the relationships among the obtained patterns. The first two research questions concern the presence and description of patterns. Their identification is prior to the examination of any manifest relationships between them. Therefore, the first two research questions, the identification of patterns, are

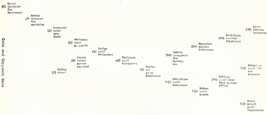
(1) Select variables for instrument
(2) Select measures for variables
(3) Construct other test items
(4) Field-test items on pupils
(5) Design pupil instrument
(6) Field-test pupil instrument
(7) Select school
(8) Obtain school system approval
(9) Revise and re-set instrument
(10) Modify instrument for teacher use
(11) Reproduce teacher instrument
(12) Administer teacher instrument
(13) Administer pupil instrument
(14) Collect pupil data from central office
(15) Determine pupil IQ and absences
(16) Select pupil sample
(17) Score sample pupil instruments
(18) Score teacher instruments
Code and Keypunch Data

FIGURE 1
Flowchart for Procedures to Obtain Data

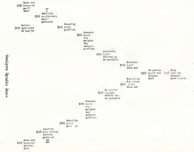
Analyze Dyadic Data
(19) Code and keypunch pupil data
I
(20) Identify preliminary pupil patterns
(21) Select subsample of pupils
(23) Identify pivot profiles
(24) Compute means and weights for pattern profiles
(25) Determine pupil similarity to patterns
(26) Generate pupil data set
(32) To merge pupil and teacher data
(33) Sort data by pattern combination
(31) Reproduce key ... data set
(30) Determine teacher similarity to patterns
(29) Compute means and weights for pattern profiles
(28) Identify pivot profiles
(27) Identify preliminary teacher patterns
II
(26) Code and keypunch teacher data

FIGURE 2
Flowchart for Procedures to Prepare Data for Analysis

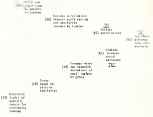
e and
group dyads
by pattern
by teacher
(35) Compute correlations between pupil ratings and similarity indexes by teacher
III
(36) Analyze correlations
V
(41) Interface evidence from each analysis
(40) Analyze between group variances
IV
(39) Compute means and standard deviations of pupil ratings by group
(38) Group dyads by pattern similarity
(37) Determine limits of quartile ranges for similarity indexes

FIGURE 3
Flowchart for Procedures to Analyze Dyads

incorporated into this group of activities.

The sequence of activities which provides for the analysis of the relationships between teacher patterns and pupil patterns is presented in Figure 3. The results of these activities are the evidence necessary to answer the final two research questions.

In each of the three tables the activities are numbered with Arabic numerals and are discussed in that order.* The Roman numerals which appear in Figures 2 and 3 represent the four research questions and indicate the point at which the principal evidence was obtained relative to each question.

Activities Related to Data Gathering

The development, administration, and scoring of instruments constitute the foci of the first 18 activities. These activities are sequenced in Figure 1. Each activity is described in detail below.

Activity 1. The nature of the variables selected for inclusion in this study constituted a major determinant of whether dyadic relationships might be found. The above statement is true if, in fact, dyadic matches influence relations between individuals. Implied in the selection of variables is an assumption about the basic nature of the dyadic relationships. It was assumed that the types of variables which would identify meaningful dyadic relationships were:

1. Psychological characteristics such as hostility and style of thinking.

---

*In order to assist the reader in relating the tables and the narrative, each discussion of an activity is identified by the Arabic numeral.

2. Background information such as out-of-school activities and home situation;

3. Attitudes about the pupils' school environment such as what are appropriate kinds of discipline

4. School-related pupil outcomes such as attendance and grades

Other potential choices were considered and ultimately discarded because of the measurement problems and the desire not to invade the privacy of pupils or teachers in such a way that they might be excessively alarmed

Activity 2 Activities 1 and 2 were carried on simultaneously The final selection of a variable was possible only if paper and pencil scales were available which provided an estimate of the degree by which a high school pupil was characterized by the variable The limitations imposed by utilizing pupils in a public school setting and the availability of scales in a suitable form had great impact on the final selection of variables

The following psychological scales were utilized in the instrument which was given to the teachers and pupils.

1. Rokeach Dogmatism Scale, Form E --This scale containing 40 items was developed by Rokeach as the fourth refinement of a longer scale to measure open-mindedness

Its construction and logic are defined in Rokeach's (1960) book The scale appeared as a reaction to mounting evidence that the California F scale (Adorno, 1950) did not identify left-wing authoritarianism

The scale was used in this study to measure differences in style of thinking, i.e., open-mindedness vs. closed-mindedness. Bush (1954) reported that the nature of the approach of a teacher greatly influenced the pupils' receptivity. The Rokeach Scale was included in order to examine this aspect of teacher's approach style.

2. Overt and Covert Hostility Scales.--A pair of scales, containing 14 and 19 items, respectively, were drawn by Bendig (1962) from the Buss-Durkee Hostility Inventory (1957).

Bendig factor-analyzed the items from the eight scales of the original instrument and obtained two factors which he labeled Overt Hostility and Covert Hostility. Replication demonstrated the stability of the factors.

Activity 3: In addition to the three psychological scales, twenty items were included which related to the behavior of teachers in a classroom situation about which pupils are likely to have an opinion. These items do not constitute a scale because they were written by the investigator as a result of reading such authorities as Ryans (1957, 1960), Gage (1963), Biddle (1964), and many articles concerning teaching methods. These items are hereafter referred to collectively as "teaching mechanics" items.

Biographical data also were obtained from each pupil; information about the family was requested concerning:

1. Number of siblings.
2. Chronological position of pupil with siblings.
3. Parents' ages and educational attainment.

4. Father's occupation

5. Presence of an employed mother

Information about the pupil was requested concerning his:

1. Age, grade level, and sex

2. Place of birth

3. Post-high school plans

4. In-school employment characteristics

5. Teacher preferences

Activity 4: In order to determine the clarity of the items a limited field test was undertaken. Twenty-two pupils from a North Florida urban high school were given the items and asked to respond to them. The investigator explained the purpose of the instrument to the pupils and asked them to identify items and/or instructions which were confusing. The pupils went through the items and responded to each of them. In a discussion with the pupils, items and instructions were identified which required modification. Included in the modification were the following:

1. Some pupils did not know their parents' ages. Therefore, the item was modified to request the pupils to estimate if necessary rather than leave the item blank.

2. Some pupils had trouble interpreting the item in which they were asked to rank order their teachers with respect to teacher effectiveness. The item was clarified by incorporating a phrase used by one of the pupils in describing what he thought might have been asked.

Activity 5. With the items established in a form which was interpretable by pupils, the next task concerned the organization of the items and necessary instructions into a format which would elicit rapid, accurate responses simultaneously from a large group of pupils. The investigator, with assistance from faculty members of the College of Education, drew up tentative formats. Assistance was also obtained from a forms design specialist associated with the commercial printing firm which printed the instrument.

Because of the length of the inventory, the diversity of response modes, and the need for rapid, accurate responses, a basic format patterned after the Kuder Preference Record (1956) was used. This format eliminated the need for a separate answer sheet while not necessitating multiple answer sheets. The first three pages of the instrument were devoted to biographical information and pupil ratings of teachers. The remaining five pages contained the items from the three psychological scales and the twenty teaching mechanic items. A copy of the instrument is found in the Appendix.

Activity 6. Because of the complexity of the instrument and the need for administration in only a semi-supervised situation, the plate proofs of the instrument were reproduced and used as a field test of the instrument with 13 pupils from a south Florida high school. The pupils responded to the instrument and then discussed aspects of the instrument which appeared to be confusing. Feedback from the pupils included:

1. The elimination of a numeric code for subject areas in one section of the inventory. The pupils reported that the use of a numeric code for both the identification of teachers and subject area was confusing and time-consuming. They stated that they could save the most time by writing out the name of the subject.

2. Several suggestions related to specific wording of instructions were made. Wherever questions were raised, recommendations for changes were sought from the pupils. The instructions were clarified in light of the recommendations.

Activities 7 and 8. Concurrent with the field testing of the instrument, a school system and specific school were selected for the data collection. The school was selected on the following bases:

1. The school was typical in that it was academically oriented, with a full complement of course offerings, and a history of high holding power.

2. The school had not experienced the strain of a rapid influx of pupils who would not be readily accepted by the pupils and the community-at-large. Specifically, the school had not had an influx of Cuban refugees or Negroes. Both of these minority groups have typically caused significant short term alterations of the general climate of the school and relationships of faculty and pupils in schools where large numbers of either group have rapidly moved in. Such an influx would have made the relationships sought by the study more difficult to identify.

3. The school was located in a community which was unlikely

to be upset by the use of their pupils in a research project of this type. The principal of the selected school was known to have excellent rapport with both his community and his faculty so potential problems were minimized.

After the necessary approvals were obtained, the principal furnished a list of the faculty members for inclusion in the instrument and specific procedures for the data collection were finalized. These were described earlier in this chapter in the section entitled "Selection of Subjects."

Activity 9: The revisions of the instrument were completed and the information provided by the school principal was incorporated into the final form. The instrument was printed and assembled so that the pupils would receive a "polished" document which would increase the chances that they would view the task of completing the instrument as a significant activity.

Activity 10: In order to obtain parallel information about the faculty, the pupil instrument was modified so that the items would be appropriate for teachers. Items were altered in some cases by requesting the information as it was when the teachers were 18 or less. For example, "Do you live with both your parents?" was asked of pupils. The teachers were asked, "Were your parents separated or divorced before your 18th birthday?" Another example, "Do you now have, or have you had in the past six months, a steady job?" was asked of pupils. The teachers were asked, "Did you tend to have regular part-time employment while you were attending school?"

Pupil items related to teacher selection were eliminated. In their place the teachers were asked to identify pupils who were similar in "approach to life" as well as to identify pupils who were likely to respond untruthfully on the instrument.

The items related to the psychological scales were given unchanged to the teachers. Finally, a reaction page was added so that the staff could respond either positively or negatively to the instrument, the study in general, or the investigator. The reaction page served two purposes:

1. Some general insights were gained about the faculty's mood.
2. Faculty members who had hostile feelings would be able to verbalize their feelings in an acceptable way. Two teachers objected to the study as a potential invasion of privacy, however, they provided the information. In an informal discussion with them, the investigator sought to reassure them concerning the confidentiality of the responses and the potential value of the study.

Activity II. The teacher instrument was not set up and printed in the same manner that the pupil instrument was. The impact of the instrument as a document was believed to be less crucial with the teachers than it was with the pupils. While the pupils would respond with no contact from the investigator, the teachers had a brief orientation from the investigator immediately before completing the instrument as one member of a small group of teachers. The instrument was duplicated by means of a ditto machine with the exception of the portion which dealt with items to which the teachers were asked to agree or disagree. That section was taken from the pupil form.

Activity 12. The 52 teachers responded to the inventory in 6 small groups. The teachers responded to the inventory during their free period one school day. The groups varied in size from 7 teachers to 12. Each teacher's instrument was made up especially for him. Each inventory was precoded for identification purposes so that the identity of the respondent would be obscured from everyone but the investigator. After a group had responded to the inventory, the teachers were encouraged to raise questions about the study, its procedures and rationale. Since the teachers responded to the teacher inventory before they supervised the pupil administration, the investigator reasoned that fewer problems and misunderstandings would occur if the teachers understood the study in as much detail as they desired.

Activity 13. Two days after the teachers responded to the teacher instrument, the pupils were administered their instrument by the teachers. The 25-minute homeroom period was set aside for the completion of the pupil instrument. Based on teacher rolls, groups of pupil instruments were prepared for each homeroom teacher. The teachers picked up their packets in the morning when they signed in. They were instructed that the class should select a pupil to return the completed forms to the investigator at the principal's office. The procedure was designed to add credibility to the assertion that the information given by the pupils was confidential and not available to the faculty. Thirty-five minutes after the morning tardy bell rang the pupils began returning the completed forms to the office. All classes returned their inventories within one hour of the tardy bell. When the last packet was returned, the principal signaled by means of the school bell that the pupils were to go to their first period classes. The school day then continued without interruption

Activity 14: In addition to the data gathered directly from the pupils, pupil data were also gathered from the central office. Grades for pupils were obtained as well as the number of absences These data were in the form of sixth-week reports by pupil for each of his courses In discussions with teachers at the school, they indicated that the sixth-week grades reflected pupil performance in their courses Grades were primarily viewed as progress reports to the parents and pupils.

Activity 15. In order to obtain a grade point average and number of absences for each pupil a computer program was written to take the three six weeks' grades in each of the subjects and compute an overall grade point average Similarly the number of absences for each class was totalled and the number of days absence was estimated from the totals.

Activity 16: From the 1,132 pupils who were enrolled and present the day the pupil instrument was given, a sample was drawn Four hundred pupils were selected for a stratified sample in which the pupils were randomly selected within each strata The pupils were stratified on the basis of sex and grade level Fifty cases were drawn for each of the eight combinations of males and females in the ninth through twelfth grades.

Activities 17 and 18: The instruments for the sample pupils and all teachers were scored. Scoring consisted of the following elements:

1. Examining the instrument responses to determine that they were substantially complete.

2. Comparing the teachers' names which appeared as pupil responses to the questions with the inventory and the teachers' names which remain unmarked on the front sheets. The list on the front sheet requested the pupil to mark off the teachers which he had had. The teachers who were listed within the inventory were expected to appear on the list on the front page. If an inconsistency occurred then the pupils responses were suspect and thereby omitted.

3. Counting the number of items for each of the hostility and dogmatism scales on which the pupil or teacher responded in the manner appropriate for the scale.

4. Determining the socio-economic status of the family as indicated by the occupation of the head-of-household.

5. Determining the degree of identification with professional education as indicated by the future occupational choice. The item was scored in the following manner:

"1" if the pupil indicated a preference for a technical occupation or indicated no plans had yet been formulated.

"2" if pupil indicated that he would go into one of the professions requiring college training.

"3" if pupil indicated that he would go into teaching.

Activities Related to Pattern Identification and Data Manipulation

Activities 19 through 33 focus on three processes. These processes are: (1) the translation of the pupil and teacher responses into data appropriate for identifying patterns of pupil and teacher profiles existing in the data, (2) the identification of patterns based on the data, and (3) the translation of the pattern analysis information into data appropriate for relating the pupil and teacher patterns to pupil ratings of teacher effectiveness. The activities are sequenced in Figure 2.

Activities 19 and 20. After the scoring process was completed, the data from each of the two instruments were coded, keypunched and verified.

Activity 21. One of the limitations of the procedure for empirically identifying patterns is the number of profiles which can be analyzed simultaneously. One hundred subjects is the maximum number that could be analyzed by the existing computer program. In order to generate patterns which were representative of the pupils of the high school at which the data were gathered, a sample not exceeding 100 was

was drawn. The strata used in drawing the sample of 400 were used in the selection of the sample not exceeding 100. Twelve pupils were selected from each group of 50 pupils drawn as described in Activity 16. Four grade levels and two sex categories resulted in a sample of 96 pupils which were used to identify patterns.

Activity 22, 23, and 24: In order to identify patterns of pupils which occurred in the data, pupil responses were analyzed by means of Guertin's procedure (1966) which sought to identify profiles of similar shape. After a shape family was identified the profiles which were associated with the shape family were analyzed in order to identify profiles of the same level as well as shape. Shape was analyzed through principal axes factor analysis, including rotation to the varimax criterion. Differences in the levels of profiles that have similar shape were identified through a factor analysis of the interprofile Mahalanobis D-Squares.

The profiles of the 96 pupils identified through the preceding activity (Activity 21) were analyzed on the University of Florida IBM 360-Mod 60 computer using the procedure described. The results of the analysis were used as evidence in responding to the first research question: Are there groups of pupils who have similar characteristics as determined by the inventory?

Activity 25: Only 96 of the pupils drawn in the original sample were utilized to identify pupil patterns. The patterns which were identified were defined in terms of the mean response on each variable of each pupil who was in the smaller sample. The profiles of each of the pupils in the original sample were compared to each identified pattern and a similarity index was computed. The similarity index was the sum of the squares of the distances between the points on a pupil's profile and the corresponding point on the identified pattern. Each of the four patterns which were identified was used to compute the similarity index associated with it. Therefore, each pupil was characterized by four similarity indexes denoting the closeness of fit of his profile to each of the identified patterns.

Activity 26. Because of the large number of pupil-teacher dyads which result from 400 pupils with approximately six teachers each, the pupil information was reorganized into a convenient card format for later processing.

The pupil ranking of his teachers, his similarity indexes, grade point average, and other pertinent data were reorganized so that subsequent activities which would interface the pupil data with teacher data could be undertaken.

Activity 27. In Activity 22 a description of the process of identifying patterns was given. The process also was used to identify patterns of teachers which occurred in the data collected from the 51 teachers. All teachers were included in the analysis. The results of this analysis were used as evidence in responding to the second research question: Are there groups of teachers who have similar characteristics as determined by an inventory which parallels the one developed for pupils?

Activities 28, 29, and 30. These activities were performed with respect to the teachers' responses in the same manner that Activities 23, 24, and 25 were with respect to pupils. While a sample was necessary for the analysis of the pupil's responses, all teachers were included in the analysis of the teachers' responses.

Activities 31 and 32. Each of the pupils had approximately six teachers. Therefore, a dyadic relationship could be assumed to exist between the pupil and each of his teachers. In order to generate the data in a format appropriate for analysis of the dyadic relationships, an interface of the pupil and teacher data was accomplished. From four patterns of pupils and two patterns of teachers, there are eight combinations of pupil-teacher types. These combinations exist for each pupil with each of his teachers. As a result there are 2,187 pupil-teacher dyads and 17,496 sets of measurements related to the dyads. In order to generate the data a computer program was written to secure on a single punched card the relevant information for each set of measurements that were related to each dyad.

Activity 33. The resulting 17,496 cards were sorted so that the measurements for each dyad were grouped into eight sets--one for each combination of pupil and teacher patterns. The data were then organized in a manner which would permit an analysis of the relationship of pupil expressed preferences for teachers and the pattern types.

Activities Related to Analyzing Relationships Between the Patterns and Teacher Effectiveness

Figure 3 sequences the activities which focus on the relationships between pupil-teacher dyads and pupil-perceived effectiveness of the teacher. Activities 34 through 42 are discussed below. Further detail is provided in Chapter V as the results and discussion are presented.

Activities 34, 35, and 36. The dyadic relationships between each teacher and all of the pupils being taught by that teacher were analyzed by correlating pupil preference for teachers and the indexes of similarity for each of the four pupil patterns. If a significant correlation existed between preference and one of the indexes of similarity then evidence would be obtained that pupils who are similar to one of the patterns have similar preferences for the specific teacher. The teachers who produced sizeable ($p < .05$) relationships between pupil pattern similarity and pupil preference for teacher were examined and contrasted in terms of their individual characteristics. In addition the patterns of correlations that were significant at a lower level ($p < .10$) were analyzed using Chi-square to determine if the positive or negative direction of the correlations was related to the sex of the teachers or their similarity to one of the teacher patterns. The resulting information therefore provided evidence related to the third research question: Do pupils who have similar characteristics choose the same teachers as effective?

Activity 37. Research question number four was answered by the assessment of pupil preference for teacher as a function of pupil and teacher similarity to their respective patterns. The pupil and teacher patterns were used to categorize each dyadic relationship with respect to closeness of fit of the pupil to each of the pupil patterns and teacher to each one of the teacher patterns. After grouping the dyadic relationships in this manner, mean pupil preference ratings were obtained for each categorized group. Variation of the means reflects the nature of the relationship between pupil preference and the pupil and teacher types.

The use of this procedure does not require an assumption about linearity of any potential relationships. It does however make the assumption that the number of groups is sufficient to reveal any existing relationships. The decision to categorize into four groups in each of the two patterns was based on the ability of the researcher to assimilate the resulting data. With eight combinations of pupil and teacher patterns, an increase in number of categories makes the number of groups increase very rapidly. The formula for the number of groups generated by the selection of a given number (n) of categories is:

$$\text{Number of groups} = 8n^2$$

Four categories were selected as the largest number of groups (128) which could be processed efficiently. Knowledge of the data suggested that little or nothing would be gained by going to five. The use of five categories would have yielded 200 groups.

The category limits were determined by dividing the 382 pupils' indexes of similarity into quartiles on each of the four pupil patterns. Category limits for each pattern were determined separately because of the differences in distributions of four arrays of data. The category limits for the teacher patterns were determined in the same manner. The 51 teachers indexes of similarity were used. The resulting limits for the pupil patterns are presented in Table 3

TABLE 3
Category Limits Between Categories by Pattern by Category

Pattern	Upper Limit of Category			
	Best Fit	Close Fit	Poor Fit	No Fit
Pupil Pattern				
1	0	.70	1.35	2.21
2	0	.88	1.53	2.62
3	0	1.03	2.01	3.12
4	0	1.35	2.80	4.66
Teacher Pattern				
A	0	2.20	3.60	7.50
B	0	3.50	7.00	12.00

Activity 38. For each combination of pupil and teacher patterns each dyad was assigned to a group, based on the two indexes of similarity. The result was a two-dimensional array with four cells in each dimension. Each pupil-teacher dyad was represented only once in the resulting 16 cells. The cells were assigned a numeric designation so that each could be isolated and the appropriate statistics computed. The designations were assigned so that the group of pupil-teacher dyads in which there existed the closest fit to the pupil pattern and teacher pattern under consideration was labeled "1". The group in which there existed the least similarity between the dyads and the pupil

pattern and teacher patterns were labeled "16." Table 4 illustrates the labeling system.

TABLE 4

Cell Designations for Dyads Characterized by Degree of Similarity on Pupil and Teacher Patterns

		Similarity on Teacher Pattern			
		Most			Least
	Most				
Similarity		1	2	3	4
on		5	6	7	8
Pupil		9	10	11	12
Pattern		13	14	15	16
	Least				

Activity 39: For each of the eight pupil-teacher pattern combinations there were 16 groups of data sorted with respect to the two indexes of similarity. For each group means and standard deviations were computed for the following data:

1. Pupil index similarity.
2. Teacher index of similarity
3. Pupil preference for teacher

Activity 40. Each of the 16-cell matrixes was analyzed through a one-way analysis of variance. The analysis tested the hypothesis: The 16-cell means of pupil preference ratings do not differ among themselves. The hypotheses were evaluated at a significance level of $\underline{p} < .01$. Each matrix containing sufficient variation to reach significance was further analyzed with Scheffé's method (Hays, 1963) of making post-hoc comparisons among means or groups of means.

Activity 41. The evidence related to each of the four research questions was synthesized in order to draw conclusions about the meaning and implications of the total body of evidence.

CHAPTER IV

PATTERN IDENTIFICATION

The results of the analysis focused on two sequential areas The areas were (1) the identification of patterns of pupils and of teachers and (2) the analysis of relationships among the patterns The first and second research questions related to the identification of patterns of pupils and teachers. These research questions are dealt with in detail in Chapter IV The final two questions dealt with the analysis of relationships of the patterns to pupil-perceived teacher effectiveness These research questions and the evidence which has been the product of this study are considered in Chapter V In summary, this chapter describes the characteristics of the student body from which the sample was drawn and then focuses on a description and synthesis of the evidence related to the following research questions

1 Are there groups of pupils who have similar characteristics, as determined by an inventory constructed for this study?

2. Are there groups of teachers who have similar characteristics as determined by an inventory designed to parallel the inventory constructed for pupils?

In order to discuss the results of each of the questions this chapter is divided into two major sections--the first section will deal with the pupil profiles and patterns resulting from these. The second section will deal with teacher profiles and patterns.

Pupils

The first section is organized into three parts. The first briefly describes the pupil population, the second examines the pupil patterns in terms of the manifest content of the variables which comprise them and how the patterns relate to each other, and the third summarizes the findings.

Description of Pupil Population.--As described in detail in Chapter III, a sample of pupils was drawn from the pupils who responded to the inventory. Table 5 provides a concise description of the variables on which the pupils were measured. In order to examine the items as used on the instruments, the reader should refer to the copy of the "Student's Preference and Opinion Inventory" in the Appendix.

Table 5 includes the item number of the corresponding item on the teacher inventory so that similar or analogue items are easily compared. Thirty of the variables on the pupil inventory are the same as or analogue to, variables on the teacher inventory. In addition to the 30 variables, the remaining variables on the pupil inventory dealt with

1. Current and projected scholastic behavior (grades, absenteeism, post high school plans)
2. Familial characteristics (parents' ages, siblings)
3. Interpersonal behavior (identification of outstanding teachers and class friends)
4. Personal characteristic (age)

TABLE 5

Brief Description of Item Content of 39 Variables Used in Pupil Profile Analysis by Item and Analogous Teacher Variable Number

Item Number		Item Content
Pupil	Teacher	
1	--	First semester grade point average
2	22	Educational level of mother
3	--	Age of mother
4	--	Number of class absences
5	6	Live with both parents
6	--	Age of father
7	--	Plans to go to college
8	--	Number of friends identified
9	30	Covert hostility scale
10	11	Educational level of father
11	29	Dogmatism scale
12	28	Overt hostility scale
13	2	Current occupational scale
14	1	Mother is gainfully employed
15	--	Pupil's age
16	25	Socio-economic status based on occupation of head of household
17	31	Pupil is gainfully employed
18	--	Number of siblings
19	--	Number of teachers identified as outstanding
		Teaching Mechanics Items
20	3	Audiovisual equipment is being used too much
21	26	Common core of subject matter for all students
22	7	Use of audiovisual equipment should be emphasized
23	24	Students should have less homework
24	15	Regular class recitation is beneficial
25	20	Grammar and spelling should influence grades in all subject areas
26	16	Corporal punishment is appropriate
27	12	Students should have more homework
28	21	Work turned in early should be graded more leniently
29	4	Homework is essential to understanding
30	13	Work turned in late should be graded down
31	18	Course grade reduction is an appropriate disciplinary technique
32	9	Teacher should rapidly respond to student's difficulties
33	5	Assigned seating promotes good discipline
34	10	Smarter students should do more for the same grades
35	27	Teachers should seek to understand pupils' personal problems
36	23	Teachers should individualize instruction
37	14	Assignment of additional homework is an appropriate disciplinary technique
38	19	A teacher should handle her own disciplinary problems
39	8	The quieter the class, the better the teaching situation

The 30 variables which were parallel to the teacher inventory concerned the following areas:

1. Familial characteristics (parents' marital status and educational level, etc.)
2. Vocational plans (post high school plans, etc.)
3. School-related attitudes (pupil-teacher interpersonal relationships, teaching practice, etc.)
4. Personal attitudes (self-other relationships, etc.)

The pupil sample was stratified by sex and grade level and contained 382 pupils. The pupils were drawn from grades nine through twelve, as described in Chapter III. Table 6 presents the item means and standard deviations of the total sample. The item means and standard deviations of pupils by stratification cell are found in the Appendix in Tables 28 and 29.

Evidence Related to the First Research Question.--The first research question concerned the identification of recurring profiles of pupils. The analysis of 96 pupils using the profile analysis technique (Guertin, 1966) described in Chapter III resulted in the identification of two clusters of profiles in which the profiles within each cluster were similar in shape to the other profiles in the cluster. Such clusters are designated as shape families. Shape family members were identified operationally when a group of profiles were correlated .50 or better with the shape factor. In this analysis two shape families were identified with sufficient profile members to be analyzed further.

TABLE 6

Means and Standard Deviations
for Selected Items
N = 382

Item Number	Mean	Standard Deviation
1	2.18	.84
2	11.55	2.93
3	41.57	7.14
4	25.66	26.29
6	44.21	10.40
8	4.54	1.26
9	8.69	2.50
10	11.39	5.95
11	14.50	5.72
12	6.05	2.95
13	1.21	.95
15	15.72	1.42
18	3.27	1.50
19	3.99	2.22
20	1.89	1.29
21	5.18	1.03
22	5.01	1.27
23	4.09	1.65
24	4.61	1.50
25	5.51	1.76
26	2.52	1.88
27	2.55	1.56
28	2.92	1.88
29	4.04	1.86
30	4.39	1.58
31	1.98	1.76
32	4.97	1.57
33	3.55	1.88
34	2.96	1.81
35	4.07	1.65
36	2.58	1.38
37	3.02	1.76
38	3.58	1.92
39	4.92	1.22

Each shape family was individually analyzed by factor analyzing the Mahalanobis d^2's between each of the profiles in a given shape family. Each rotated factor constituted a pattern whose profile was defined as the mean of the profiles which loaded heavily on the rotated factor. The first shape family yielded two patterns which are hereafter referred to as patterns 1 and 2. The second shape family also produced two patterns. These two were labeled patterns 3 and 4. Therefore, each of the four obtained patterns is related by shape to one of the other patterns.

Each point on each pattern profile was weighted by a constant based on the ratio between the variance of the variable for all pupils in the initial analysis and the variance of the variable for the pivot (similar) profiles. This weight enabled the variables which had the greatest potential for predicting pattern membership to contribute more to the similarity index than variables which had less potential. Specifically, the weight indicated the degree to which variation of pivot profile points around patterns means was small in relation to the variance of all profiles on the particular variable.

The weights and means of each pattern were used to compute an index of similarity to the pattern for each pupil. It was calculated by multiplying the weight and squared deviation between pattern profile points for each point and summing the resulting products across all variables. Finally dividing by the sum of the weights. This computation is expressed algebraically below

$$\begin{array}{l}\text{Pupil}_i \text{ Similarity} \\ \text{to Pattern}_k\end{array} = \frac{\sum (\text{Weight}_{jk}) \begin{pmatrix} \text{Pupil}_i \text{ Point}_j \text{ minus} \\ \text{Pattern}_k \text{ Profile Point}_j \end{pmatrix}^2}{\sum (\text{Weight}_{jk})}$$

The four obtained patterns were identified from a subsample of 96 pupils drawn by the same method from the sample of 382 pupils as that sample had been drawn from the original school population. The subsample was a stratified sample with 12 individuals drawn randomly from the eight stratification cells of the larger sample. All 382 pupils were not utilized in the search for patterns because of the incorporation of a transposed factor analysis as the initial step in the analytic procedure. The transposed factor analysis which yields the shape families, intercorrelates subjects across items and the resulting intercorrelation matrix rapidly becomes unmanageable as the number of correlations in the total matrix exceeds the square of 100. A second complication can occur when the number of profiles is increased. While the number of columns to be intercorrelated in the analysis can be increased through the introduction of more subjects the number of replications for the analysis is static because no additional profile points (rows) can be introduced. Thus with regard to the transposed factor analysis the researcher is faced with the problem of analyzing large numbers of pupils in the original data with only a few replications. As the ratio of columns to row replications increases the influence of error variance in the determination of factors is increased.

The profiles of the four patterns which were identified from the subsample of 96 pupils are presented in Table 7 The pattern points are presented as deviations of each point from the corresponding subsample item mean in standard units. Because of the variability of the item standard deviations, the deviations were standardized by

TABLE 7

Deviations of Modal Patterns from Total Sample Item Means by Item, Total Sample Means, and Standard Deviations

Item Number	Standard Deviations from Total Sample Means				Total Sample	
	Shape Family A		Shape Family B			
	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Mean	Standard Deviation
1	.66	-.65	-1.36	-.01	2.19	.77
2	.29	-.09	-.46	.32	11.15	2.99
3	.01	.10	.37	.21	41.49	6.85
4	-.22	.04	.34	.54	26.74	25.84
5	-.10	.00	.15	-.35	1.17	.40
6	.06	.01	.19	.33	44.98	9.50
7	-.30	.19	.22	-.08	1.14	.37
8	.18	-.11	-.32	.34	4.56	1.19
9	-.17	.41	.27	-.14	8.80	2.06
10	.12	-.19	-.15	-.01	11.28	3.77
11	-.01	-.05	-.34	-.06	13.97	5.66
12	.03	.02	-.23	.29	6.24	2.65
13	.32	-.35	-.28	.10	1.14	.92
14	.15	-.09	-.04	-.11	1.53	.54
15	-.02	.25	-.23	-.15	15.75	1.22
16	.19	.18	-.37	.37	1.60	.57
17	.02	-.24	-.06	-.34	1.64	.50
18	.00	.08	.23	-.39	3.58	1.48
19	-.02	.01	.09	-.05	4.00	2.15
20	.06	-.10	-.05	-.42	1.85	1.24
21	.25	.09	-.15	.30	5.30	1.08
22	.07	.10	-.43	.43	5.06	1.27
23	-.28	.10	.43	.02	4.05	1.67
24	.07	-.14	-.28	-.11	4.60	1.52
25	.04	-.13	.05	.07	3.66	1.74
26	-.27	.07	.54	-.03	2.53	1.78
27	.14	.02	.00	-.13	2.61	1.68
28	-.05	.03	.12	.14	2.74	1.80
29	-.07	.03	.18	.37	4.10	1.89
30	.16	-.13	-.47	-.01	4.65	1.38
31	-.16	.21	.28	-.06	2.31	1.72
32	.09	-.21	-.28	-.24	4.74	1.56
33	-.11	.03	.40	.04	3.34	2.86
34	.03	.10	.11	.05	3.09	2.92
35	-.04	.15	.01	.45	4.07	1.72
36	-.19	-.02	.38	-.04	2.52	1.60
37	.07	-.02	-.08	-.02	2.85	1.79
38	-.04	.09	.11	.42	3.53	1.99
39	.06	-.06	-.12	.34	5.06	1.21

dividing each by the subsample standard deviation. The raw score pattern means can be recomputed from the entries in Table 7 by multiplying each pattern profile point by the total sample standard deviation and adding the product to the sample mean. The weights for each point on each of the patterns are found in Table 8.

The patterns will be examined in the following pages to determine the extent to which they yield independent sets of similarity indexes and to disclose the manifest content of the variables which define each one

The patterns were obtained to categorize all 382 pupils, not just the 96 who were analyzed by the profile analysis program. The independence of the four patterns with respect to the 382 pupil profiles was examined by obtaining the indexes of similarity for each of the pupils across the four patterns and intercorrelating the measures across all pupils. The resulting matrix of correlations is found in Table 9.

Patterns 1 and 2 had the lowest correlation coefficient (.29). An inspection of Table 9 will confirm that patterns 2, 3, and 4 were all highly correlated. Their three correlations ranged from .83 to .98. Therefore it was expected that the three patterns would not differ greatly in their observed relationship to pupil preference.

The patterns resulted from a set of variables chosen as likely to discriminate pupils by types. In order to describe each of the patterns in terms of the manifest content of the variables, the following procedure was adopted. The pattern profile of each of the patterns was examined to determine which patterns had the highest or

TABLE 8

Weights of Modal Patterns by Item

Number	Shape Family A		Shape Family B	
	Pattern 1	Pattern 2	Pattern 3	Pattern 4
1	1.79	1.75	2.24	1.93
2	1.03	1.04	.83	3.18
3	.91	1.42	1.25	1.69
4	1.49	1.25	.96	1.49
5	1.17	1.02	.91	1.88
6	1.09	1.00	1.15	1.75
7	2.00	.82	.81	1.27
8	1.07	1.13	.74	1.79
9	.93	1.23	1.19	1.26
10	.92	1.26	1.03	1.22
11	1.02	1.04	1.07	1.24
12	1.00	.98	1.15	1.10
13	.95	1.00	1.19	1.04
14	1.03	1.00	1.08	1.08
15	1.04	1.03	1.04	1.06
16	1.08	1.07	.88	1.04
17	1.00	1.03	1.03	1.02
18	1.05	.97	.93	.96
19	1.02	.96	.94	1.00
20	.93	1.15	1.11	2.20
21	.90	1.26	1.26	1.92
22	1.11	.96	.87	1.74
23	.99	1.17	1.26	1.15
24	1.05	.95	1.01	1.29
25	1.00	1.05	1.03	1.20
26	1.00	1.05	.99	1.21
27	1.00	1.12	.95	1.18
28	.96	1.08	1.05	1.08
29	.97	1.01	1.12	1.00
30	1.25	.90	.76	1.18
31	1.13	.94	1.00	1.01
32	1.09	1.00	.95	1.04
33	1.03	.99	.92	1.08
34	1.02	.95	.97	1.07
35	1.03	1.02	.89	1.07
36	1.07	1.00	.95	.99
37	1.01	.99	.99	.99
38	1.06	.97	.92	.95
39	1.00	.93	.84	1.10

TABLE 9

Correlations Between Indexes of Pupil Similarity
to Patterns Across Patterns

	1	2	3	4
1	-	.29*	.35*	.30*
2	.29*	-	.89*	.83*
3	.38*	.89*	-	.38*
4	.30*	.83*	.88*	-

*$p < .05$

the lowest profile point on each of the 39 variables when compared with the other three patterns. The high and low points then became the basis by which pattern profiles were described. The use of a "high-low" approach had several advantages which supported its use.

The greatest advantage offered by the use of the "high-low" approach was related to the arbitrary nature of the scaling associated with many of the variables. Twenty variables were responses to a six-point scale on which the two extremes were labeled "Strongly Disagree" and "Strongly Agree." To describe a pupil type's performance on a variable scaled in this manner is meaningless except in relation to a standard. By the use of the "high-low" approach the standard explicitly becomes the other three patterns.

A second advantage concerns the extent of dispersion of the four patterns. The patterns do not differ greatly when taken point by point. That such would be the case is implicit in the rationale for a search for recurring patterns. To adopt a more traditional method to select items for describing patterns, such as the use of variables which differed from the others with a significance p of .05 percent, would serve to eliminate the description of each pattern in terms of the variables involved because few, if any, differences would meet such a criterion.

A third advantage is also related to the dispersion of the profile points which comprise the patterns. The points vary so little among themselves that to describe each pattern in terms of all 39 variables would result in a considerable amount of description and differentiation between extremely small differences. Such activity would probably be confusing as well as meaningless. The extremes of the patterns appear to be the best indicators of the type of pupils who constitute the group. The "high-low" approach represents a way to emphasize the extremes.

The major disadvantage of the approach is that it hides certain relationships which may exist. For example, a very small difference between the highest and lowest means on a pattern point does not prevent the selection of the two descriptors. In order to mitigate the effect of the procedure not incorporating the dispersion of means, the difference between the highest and lowest means is given in the tables of descriptors for each pattern.

Another potential problem results from the possibility that a variable might be ascribed to one pattern as a descriptor and not another because of very small differences between the two patterns. For example, the seventh variable dealt with pupils' plans to attend college. Patterns 2 and 3 were quite close together. Their deviations from the sample mean were .19 and .22, respectively, while the other two patterns were -.08 and -.30. The deviations are all expressed in terms of the number of standard deviations from the mean. Because of a difference of .03 standard deviations, pattern 3, rather than pattern 2, was assigned the descriptor "most likely to plan to attend college." The practical effect was not too great because the pattern weights for the item were both small. Of the other four variables where differences of .03 or less in the pattern deviations from the sample mean determined the pattern to which descriptor was assigned, the pattern on which each variable had the higher weight was assigned the descriptor. The descriptor was more appropriate for the pattern to which it was assigned because of the small differences in deviation from the mean which were in four of the selected patterns as well as the weights associated with the descriptor were greater than those associated with the variable on the pattern not selected.

The weights that were computed from the pattern profile points reflect the dispersion of the pivot profile points for a given item around the pattern mean for that item. By using the ratio of total group variance to pattern pivot profile variance the weights indicate dispersion within the context of the total group variance. Thus for the same weight, an item with a high total group variance was permitted more variability within the pivot profile points than was an item with a lower total group variance.

As each of the pupil patterns is described in the following pages, the descriptions will emphasize high or low weights that are associated with those profile points even though the descriptions are selected on the basis of high and low profile means. Seventy-eight descriptors were used to describe the patterns. These descriptors were unevenly distributed across the patterns because patterns could lie between the other patterns. This was particularly true of pattern 2. The portions of patterns which lie between other patterns are largely irrelevant to a description of the pattern profiles based on the variables.

The extremes for each of the teaching mechanics items were classified as convergent or divergent with the expressed attitudes of the total sample. For example, the sample of pupils had a mean response of 2.53 on the item which dealt with the appropriateness of corporal punishment. This mean indicated that corporal punishment tends to be seen as an inappropriate disciplinary technique since the midpoint of the scale range was 3.5. That point is midway between the "Strongly Agree" ratings which were coded 6, and the "Strongly Disagree" ratings which were coded 1. On the corporal punishment item pupils with pivot profiles on pattern 3 showed the greatest amount of divergence from the total group while pattern 1 pupils showed the greatest congruence of the four patterns. Table 10 presents the number of descriptors for each of the four patterns. In the table the teaching mechanics items are separately categorized as divergent or convergent and the number of each is reported by pattern.

It is evident from Table 10 that pattern 2 is sandwiched in among the other patterns. Less than 5 percent of its items were found at one or the other extreme. Items of each pattern would be found by chance to lie at one of the extremes about 25 percent of the time. Patterns 4, and to some extent pattern 1, tend to be characterized by a sizable number of convergent statements on the teaching mechanics items. Pattern 3 tends to characterize pupils whose attitudes are divergent with respect to the total group.

TABLE 10

Number of Extreme Profile Points and Extent of Convergence and Divergence on the Teaching Mechanics Variables by Pupil Pattern

	Number of Descriptors			
	Teaching Mechanics Items		Other	
Patterns	Convergent	Divergent	Variables	Total
1	9	7	10	26
2	0	1	5	6
3	2	11	12	25
4	9	1	11	21

As a form of literary short hand, the descriptions of the pattern profiles will refer to "the high agreement with" some position when what is meant precisely is: "when compared to the other three patterns, the pattern profile's mean response was higher (or lower) than any of the other three." The differences have not been subjected to individual tests of significance because there is no basis to believe that the difference should be great enough to meet the traditional criteria. It is the relationships among the variables which should result in recurring patterns. Individually the differences are relatively small, but collectively they are potentially meaningful.

Description of Pupil Pattern 1.--Pupil pattern 1 appears to represent the high-achieving pupils from middle-class families. The pupils whose criterion profiles comprised pattern 1 had high grade-point averages and were rarely absent from school. However, they showed little interest in attending college while indicating that they were moving toward a professional career.

Of the four characteristics referred to above, the first three were the most heavily weighted variables on pattern 1. The only other item with a weight appreciably greater than 1.0 was the teaching mechanics item dealing with the lowering of grades on work which was turned in late. They disapproved of the policy less than any other group. Their failure to disapprove as strongly as the other groups may reflect an attitude that achievement is important (highest GPA of the four groups), and since all pupils should be judged by the same standards (work turned in early should not be graded more leniently and smarter students should not have to do more for the same grade) pupils who are late with their work must be penalized. All other items had weights of approximately 1.0. This means that the variance around the pattern means for the points were the same as the variance of all pupils around the total sample mean.

The variables which were associated with pattern 1 are presented in Table 11. Also found in the table are the weights for each variable. The variables indicate that the pattern 1 pupils were dogmatic but not covertly hostile. They tended to respond to the variables in the same manner as the total sample did. On the teaching mechanics items where the pattern 1 pupils had either the highest or lowest mean they were in agreement with the larger sample of pupils 56 percent of the time. This percentage suggests that these pupils were not vastly deviant from the school population with respect to these items.

TABLE 11

Variable Numbers, Weights, Ranges of Pattern Means,
and Descriptors of High and Low Extremes
on the Pattern 1 Profile Rank Ordered by Weight

Item Number	Weight	Range of Means	Descriptor
7	2.00	.52	Least likely to plan to attend college
1	1.79	2.02	Has highest GPA
4	1.49	.76	Has fewest absences
30	1.25	.63	Most agreed that work turned in late should be graded down
31	1.11	.44	Least agreeable to course grade reduction as a disciplinary technique
32	1.09	.37	Most agreement that teachers should respond rapidly to students who are having difficulties
36	1.07	.57	Least agreement that teachers should individualize instruction
38	1.06	.46	Least agreement that teachers should handle their own discipline problems
24	1.05	.35	Most agreement that regular class recitation is beneficial
35	1.03	.49	Least agreement that teachers should seek to understand pupil's personal problems
33	1.03	.37	Least agreement that assigned seating promotes discipline
14	1.03	.26	Most likely to have a working mother
11	1.02	.33	Most dogmatic group
34	1.02	.08	Least agreement that smarter students should do more for the same grade
37	1.01	.15	Most agreement to homework as a disciplinary technique
17	1.00	.36	Most likely for pupil to be employed
27	1.00	.27	Most agreement that students should have more homework
26	1.00	.81	Least agreed that corporal punishment is appropriate
23	.99	.71	Least agreement that students should have less homework
29	.97	.34	Least agreement that homework is essential to understanding
28	.96	.19	Least agreeable that work turned in early should be graded more leniently
13	.95	.67	Occupational plans are most compatible with teaching

Table 11 (continued)

Item Number	Weight	Range of Means	Descriptor
9	.93	.58	Least covertly hostile group
20	93	.48	Most agreement that audiovisual equipment is being used too much
10	.92	.31	Has most highly educated fathers
3	91	.36	Has youngest mothers

The pupils of pattern 1 evidenced selective appreciation for some of the more traditional teacher practices with a scholastic emphasis. For example, the pupils approved of classroom recitation more strongly than any other group while being least agreeable to the teacher spending the majority of her time helping individual pupils. The pattern 1 pupils seem to be group oriented.

The disciplinary technique which was most appropriate as judged from their responses was the assignment of additional work. However, they were in least agreement with corporal punishment and the lowering of grades. They doubted the value of assigned seating as a disciplinary technique. While the pupils agree that teachers should respond rapidly to a pupil who is encountering difficulty, they are least agreeable for the teacher to become involved in personal problems of pupils. Their responses may indicate that the teacher was seen as a resource for learning but not in a counseling role.

The pupils are most agreeable to additional homework even though they are least confident that homework is essential to understanding the material which they were being taught.

The pupils had young mothers who were likely to be gainfully employed. Likewise, the pupils were most likely to be employed. In spite of the fact that they reported few plans to go to college, their occupational goals were professionally oriented and their fathers were reported to be the most highly educated of any of the groups.

Description of Pupil Pattern 2.--Pupil pattern 2 appears to represent a group of pupils who show little evidence of differing from the other pupils. The evidence of difference was so little that it may indicate a lack of concern for school-related activity. Table 12 presents the variables and variable weights associated with pattern 2. This pattern was characterized by the fewest number of descriptors of any pattern. The pattern had variables at one of the extremes only six times. Based on these six variables the pupils tended to be older, more covertly hostile, and to be aspiring to vocational fields which are least professionally oriented. They reported that their fathers were younger and least highly educated of the four groups.

On only one of the 20 teaching mechanics items did the pattern 2 pupils respond in such a manner which placed them at one extreme. They indicated that grammar and spelling should not influence grades in the various subject areas. This item had the fourth smallest range of teaching mechanics items across the four patterns. Because of the size of the range and since the mean of all pupils was 3.51 (scale midpoint is 3.50) and the four pattern weights were all near 1.0, the four patterns might be viewed as equally undecided about this practice.

The only weights which differed appreciably from 1.0 were related to their age, educational level of their fathers, and covert hostility level. On each of these three weights the variance associated with the total sample was about 25 percent less than that associated with the pattern.

TABLE 12

Variable Numbers, Weights, Ranges of Pattern Means, and Descriptors of High and Low Extremes on the Pattern 2 Profile Rank Ordered by Weight

Item Number	Weight	Range of Means	Descriptor
10	1.26	.31	Least highly educated fathers
15	1.25	.48	Is oldest group
9	1.23	.58	Most covertly hostile group
25	1.05	.20	Least agreement that grammar and spelling should influence grades in all subject areas
13	1.00	.67	Occupational plans are least compatible with teaching
6	1.00	.32	Has youngest fathers

Description of Pupil Pattern 3.--Pupil pattern 3 appears to represent the low achieving young pupils from lower middle class homes. The descriptors and weights associated with pattern 3 are found in Table 13. The pupils whose profiles comprised pattern 3 were least dogmatic and overtly hostile. They identified the fewest pupils as close friends and were more divergent in their responses on the teaching mechanics items than any other pattern. They were the divergent group on 85 percent of the items where their mean response was one of the extremes.

In spite of their grades they most frequently reported college plans and designated more teachers as outstanding than any other group. They lived with both parents and had older, less educated mothers than other groups. They had the largest number of brothers and sisters.

The pupils of pattern 3 indicated that they saw little value in the position that all students should be expected to master certain

TABLE 13

Variable Numbers, Weights, Ranges of Pattern Means,
and Descriptors of High and Low Extremes
on the Pattern 3 Profile Rank Ordered by Weight

Item Number	Weight	Range of Means	Descriptors
1	2.24	2.02	Has lowest GPA
21	1.26	.45	Least agreement with the need for a core of subject matter
23	1.26	.71	Most agreement that students should have less homework
3	1.25	.36	Has oldest mothers
19	1.19	.14	Designated largest number of teachers as outstanding
12	1.15	.52	Least overtly hostile group
11	1.07	.33	Least dogmatic group
15	1.04	.48	Is youngest
24	1.01	.35	Least agreement that regular class recitation is beneficial
31	1.00	.44	Most agreeable to course grade reduction as a discipline technique
37	.99	.15	Least agreeable to homework as a disciplinary technique
26	.99	.81	Most agreed that corporal punishment is appropriate
34	.97	.08	Most agreement that smarter students should do more for the same grade
32	.95	.37	Least agreement that teachers should respond rapidly to students who are having difficulties
36	.95	.57	Most agreement that teachers should individualize instruction
18	.93	.62	Has largest number of siblings
33	.92	.51	Most agreement that assigned seating promotes discipline
5	.91	.50	More likely to live with both parents
16	.88	.74	Has lowest socio-economic status
22	.87	.86	Least agreement that the use of audio-visual equipment should be emphasized
39	.84	.40	Least agreed that a quiet classroom facilitated teaching
2	.83	.41	Has least highly educated mothers
7	.81	.52	More likely to plan to attend college
30	.76	.63	Least agreed that work turned in late should be graded down
8	.74	.66	Identified the smallest number of friends

skills and course content regardless of their future plans. They were least appreciative of audiovisual utilization. The pupils indicated less objection to seat assignment in the classroom but saw little need for a quiet classroom from an instructional standpoint.

On four of the first nineteen variables and on exactly half of the teaching mechanics items, pattern 3 stood as the counterpoint to pattern 1. They were at opposite extremes on academic performance, projected college attendance, degree of dogmatism and willingness to designate teachers as outstanding. On the teaching mechanics items pupils with pattern 3 profiles approved of assigned seats, grading smarter pupils more strictly, corporal punishment, and reducing grades as a disciplinary technique. They indicated a need to reduce homework loads. They disagreed that work turned in late should be graded down and that additional homework is an appropriate disciplinary technique. Teachers should be readily available to work with pupils on an individual basis. In contrast to pattern 1 pupils, pupils of pattern 3 seemed to emphasize the teacher working with one pupil rather than rapid availability of the teacher when needed by a pupil working on his own. Finally, the first and third patterns were opposite with regard to the use of regular class recitation. The pattern 1 pupils approved of it.

Pattern 3 had the lowest array of weights which indicates that it was the least tightly clustered of the four patterns. Weights which differed appreciably from 1.0 occurred only on the items dealing with GPA, age of mother, value of a common core of subjects, and the desire for decreased homework.

Description of Pupil Pattern 4.--Pupil pattern 4 appears to represent the higher level of middle class pupils whose outlooks concerning the dimensions touched upon by these variables is convergent with but more extreme than the total group itself. The variables on which the pattern 4 profile occupied an extreme position are found in Table 14. When the group was at one of the extremes on the teaching mechanics items, it tended to be the position most convergent with the total group of pupils.

The pupils were characterized by high absenteeism, highest socio-economic status, and overt hostility. The pupils identified many friends but designated few teachers as outstanding. Their mothers were more highly educated than those of other patterns. The educational status of the mothers had the highest weight on this pattern than any other weight on any of the patterns. The pupils were least likely to live with both parents, had older fathers, and fewer brothers and sisters.

On the teaching mechanics items the pattern was convergent on nine out of the ten items where the pattern occupied an extreme position. For example, the total sample disagreed that audiovisual equipment was being used too much. Of the four patterns, pupils whose profiles established pattern 4 were in most agreement with the position indicated by the total group of pupils. This was the case on nine of the items. Of the other ten teaching mechanics items the pattern was in the second most convergent position seven out of ten times. On the teaching mechanics items, the pattern was convergent with the total sample on all items except the four listed below.

TABLE 14

Variable Numbers, Weights, Ranges of Pattern Means,
and Descriptors of High and Low Extremes
on the Pattern 4 Profile Rank Ordered by Weight

Item Number	Weight	Range of Means	Descriptors
2	3.18	.41	Has most highly educated mothers
20	2.20	.48	Least agreement that audiovisual equipment is being used too much
21	1.92	.45	Most agreement with the need for a common core of subject matter
5	1.88	.50	Least likely to live with both parents
8	1.79	.66	Identified the largest number of friends
6	1.75	.32	Has eldest fathers
22	1.74	.86	Most agreement that audiovisual equipment should be emphasized
4	1.49	.76	Has most absences
25	1.20	.20	Most agreement that grammar and spelling should influence grades in all subject areas
27	1.18	.27	Least agreement that students should have more homework
12	1.10	.52	Most overtly hostile group
39	1.10	.40	Most agreement that a quiet classroom facilitated teaching
14	1.08	.26	Least likely to have a working mother
35	1.07	.49	Most agreement that teachers should seek to understand pupil's personal problems
28	1.05	.19	Most agreeable that work turned in early should be graded more leniently
16	1.04	.74	Has lowest socio-economic status
17	1.02	.36	Least likely for pupil to be employed
19	1.00	.14	Designated the fewest number of teachers as outstanding
29	1.00	.36	Most agreement that homework is essential to understanding
18	.96	.62	Has least siblings
38	.95	.46	Most agreement that teachers should handle their own discipline problems

1. Seating assignments should not be made,
2. Teachers should respond rapidly to pupils having difficulties,
3. Work which is turned in early should not be graded more leniently, and
4. Less homework should be given.

Summary.--The four patterns showed some capability of grouping pupil types. The first and third patterns tended to be opposites. The second pattern was sandwiched in between the others. The fourth pattern was generally an overstatement of the total group's position with respect to attitudes and other characteristics of the total group. It has the largest weights of any pattern. The patterns were not independent of each other. All of the patterns correlated to a degree that was significantly better than zero at the .05 level of confidence. In spite of the significant correlation correlations, the first pattern's correlation coefficients with patterns 2 and 4 were .29 and .30, respectively. Since each of these explains less than 10 percent of the variance, there remained considerable opportunity for the patterns to demonstrate their abilities to discriminate between groups. These analyses are found in Chapter V.

Teachers

The section on teachers is organized into two parts. The first part briefly describes the teachers as a group and the second part examines the two teacher patterns which were identified through a process of contrasting one with the other. The data reported in this section were drawn from the total faculty of the school rather than from a sample as was the case in the pupil analysis.

Description of Teachers.--As described in detail in Chapter III, the teachers responded to the "Teacher's Opinion Inventory" which contained variables in the following areas:

1. Familial characteristics when the teacher was in his teens,
2. Vocational plans of the teacher when he was in his teens,
3. School related attitudes,
4. Personal attitudes, and
5. Amount of collegiate training

Of the 31 variables which were used in the analysis, all but one were the same as, or analogous to, those found on the pupil instrument. The exception concerned the highest college degree held by each teacher. Table 15 presents a brief description of each of the variables which were utilized in the pattern analysis of teacher responses. For each variable the corresponding pupil item is given for easy reference. In order to examine the items as used in the teacher instrument, the reader should refer to the copy of the "Teacher's Opinion Inventory" in the Appendix. The means and standard deviations of the 51 teacher's responses to each variable are included in Table 16.

The variables include the 20 teaching mechanics items with the other 11 measures. All 31 are presented in an order designed to

TABLE 15

Description of Item Content of 31 Variables Used in Teacher Profile Analysis and Analogous Pupil Variable Numbers

Item Number		
Teacher	Pupil	Item Content
1	14	Mother was gainfully employed when teacher was in his teens
2	13	Teacher's occupational plans at age 18
3	20	Audiovisual equipment is used too much
4	29	Homework is essential to understanding
5	33	Assigned seating promotes good discipline
6	5	Marital status of parents when teacher was 18
7	22	Use of audiovisual equipment should be emphasized
8	39	The quieter the class the better the teaching situation
9	32	Teacher should rapidly respond to student's difficulties
10	34	Smarter students should do more for the same grade
11	10	Educational level of father
12	27	Students should have more homework
13	30	Work turned in late should be graded down
14	37	Assignment of additional homework is an appropriate disciplinary technique
15	24	Regular classroom recitation is beneficial
16	26	Corporal punishment is appropriate
17	--	Highest collegiate degree currently held
18	31	Course grade reduction is an appropriate disciplinary technique
19	38	A teacher should handle her own disciplinary problems
20	25	Grammar and spelling should influence grades in all subject areas
21	28	Work turned in early should be graded more leniently
22	2	Educational level of mother
23	36	Teachers should individualize instruction
24	23	Students should have less homework
25	16	Father occupation when teacher was 18
26	21	Common core of subject matter for all students
27	35	Teachers should seek to understand students' personal problems
28	12	Overt hostility scale
29	11	Dogmatism scale
30	9	Covert hostility scale
31	17	Teacher was usually gainfully employed in his teens

Table 16

Deviations of Modal Patterns from Teacher Means in Standard Units, Pattern Weights, Group Means, and Standard Deviations by Item

Item Number	Deviations from Group Mean: Pattern 1	Deviations from Group Mean: Pattern 2	Pattern Weights: Pattern 1	Pattern Weights: Pattern 2	Total Group: Mean	Total Group: Deviation
1	-.84	.17	1.28	.97	1.69	.46
2	-.49	.16	1.13	.93	1.94	1.09
3	-.29	.26	1.02	1.62	2.24	.94
4	-.30	.25	1.03	.93	3.22	1.49
5	-.27	.34	1.03	1.12	3.63	1.55
6	-.25	.54	2.35	.88	1.06	.24
7	-.22	.44	1.51	.89	4.86	1.19
8	-.20	.29	1.13	1.11	3.67	1.48
9	-.16	.23	1.37	.90	4.63	1.45
10	-.12	.18	1.13	1.12	3.98	1.72
11	-.10	.00	1.19	1.07	10.51	2.33
12	-.03	.43	1.03	1.24	2.31	1.26
13	-.02	.47	1.16	.86	4.57	1.21
14	-.06	.31	.93	1.54	2.04	1.27
15	.08	.27	1.16	.78	4.65	1.20
16	.05	.14	1.04	1.38	3.06	1.75
17	.22	.30	1.03	1.04	2.33	.51
18	.05	.09	1.00	1.17	1.98	1.29
19	-.06	.01	1.04	.88	4.22	1.46
20	-.09	-.05	1.40	1.15	4.16	1.43
21	-.09	-.06	.90	1.63	1.65	1.10
22	-.09	-.08	1.24	1.17	11.04	2.12
23	-.22	-.24	1.01	1.39	3.22	1.39
24	-.17	-.37	.99	.87	2.82	1.32
25	-.12	-.20	.99	.99	1.41	.49
26	.10	-.14	.84	1.37	5.67	.58
27	.01	-.15	1.01	2.68	4.78	1.23
28	.05	-.12	1.08	1.15	7.43	3.32
29	.12	-.19	2.31	1.83	20.80	6.49
30	.12	-.30	1.16	1.21	8.80	3.09
31	.25	-.49	1.05	1.65	1.67	.51

emphasize the differences between the two patterns which were finally obtained from the analysis of the responses.

The mean responses of the teachers did not differ substantially from those of the pupils. On the ten variables which were common to both inventories the pupils and the teachers were very similar in their responses. The two major exceptions were the teachers' higher scores on the dogmatism and overt hostility scales. On the 20 teaching mechanics items the pupils' and teachers' mean responses correlated significantly (r = .78). The two groups fell on opposite sides of the midpoint of the scales on only two items. The items were:

1. Assigned seating promoted good discipline, and
2. Smarter students should do more for the same grade.

The pupil's mean responses to the two items were 3.35 and 2.96, respectively, on a six-point scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (6). The teachers' responses were 3.63 and 3.98, respectively. The pupils fell to the disagree side of both items while the teachers tended to agree with each. Utilizing a t-test, the differences were analyzed and no significant difference was found on the item dealing with seat assignment. The item concerning smarter students doing more work was significant ($t = 3.80$, $t_{.05} = 1.96$). The presence of only one item in the 20 in which the pupils and teachers were different across the midpoint suggests that as groups the pupils and teachers were in substantial agreement with each other.

Evidence Related to the Second Research Question.--The second research question concerned the identification of recurring patterns of teachers. Analysis of the 51 teachers' profiles revealed four patterns. Like the pupil patterns, the teacher patterns occurred as pairs. The first shape family provided two patterns as did the second shape family. The four patterns were then analyzed as though they were four individual profiles. The first patterns from each shape family were merged into a single pattern. The second patterns from each were also merged. The result was the identification of two rather than four patterns by which to characterize the teachers.

In order to further examine the initial four teacher patterns, the indexes of similarity of each profile for each of the four patterns were computed. The indexes of similarity for the initial pairs of teacher patterns that subsequently were merged into single patterns were correlated. The correlation between the first patterns of each shape family was +.99. The correlation between the second patterns of each was +.98, while the correlation between the first and second patterns of each shape family were -.58 and -.59. The correlation between the two merged patterns was -.60.

The two patterns which resulted from merging the pairs of the initial four teacher patterns have been labeled A and B. Pattern A is the result of the merging of the first patterns from the two shape families. Pattern B is the other. These two patterns are presented in Table 16. Each pattern profile point is specified in terms of the number of standard deviations it is from the mean response of the 51 teachers on the item. Each pattern profile point had the group mean subtracted from it and the difference was then divided by the total group standard deviation. This pro[illegible]tions in terms of standard scores.

The patterns are described below by contrasting the variables on which the patterns (1) were at least one-half of a standard deviation apart, or (2) had a weight associated with one or both of the patterns which was greater than 1.20. The use of these criteria resulted in the selection of 20 variables which have been presented in Table 17. Also included in the table are the weights associated with each variable that are greater than 1.20.

The teachers whose profiles comprised the pivot profiles for pattern A were more dogmatic and covertly hostile than were the teachers whose profiles constituted pattern B. The pattern A teachers were more likely to have been employed when they were in their teens but were less inclined to be teachers during these years. The pattern A teachers came from homes with no divorces while a few (15 percent) of the pattern B teachers indicated that their parents had been divorced or separated while the teacher was still at their homes. The mothers of pattern A teachers were less likely to work. However, the two groups indicated no appreciable difference in the educational levels of their mothers. The majority of their mothers had gotten at least within a year of high school graduation.

In relationships with students the pattern A teachers felt more strongly about actively seeking to become involved with students' personal problems. While both groups agreed that such action was appropriate, pattern B teachers less strongly agreed. Likewise, pattern B teachers showed a greater willingness to assist pupils who were

TABLE 17

Weights Greater than 1.20 and Descriptor of Selected Variables Used to Contrast Teacher Patterns A and B

Variable Number	Weights A	Weights B	Descriptor
1	1.28		Mother was gainfully employed when teacher was in his teens
2			Teacher's occupational place at age 18
3		1.62	Audiovisual equipment is used too much
4			Homework is essential to understanding
5			Assigned seating promotes good discipline
6	2.35		Marital status of parents when teacher was 18
7	1.51		Use of audiovisual equipment should be emphasized
9	1.37		Teachers should rapidly respond to student's difficulties
12		1.24	Students should have more homework
14		1.54	Assignment of additional homework is an appropriate disciplinary technique
16		1.38	Corporal punishment is appropriate
20	1.40		Grammar and spelling should influence grades in all subject areas
21		1.63	Work turned in early should be graded more leniently
22	1.24		Education level of mother
23		1.39	Teachers should individualize instruction
26		1.37	Common core of subject matter for all students
27		1.68	Teachers should seek to understand student's personal problems
29	2.31	1.83	Dogmatism scale
30		1.21	Covert hostility scale
31		1.65	Teacher was usually gainfully employed in his teens

beginning to experience difficulties with their work. Both groups had the same mean response to the item that a teacher should spend most of his time helping individual pupils. They mildly disagreed with the position.

On the items related to discipline both groups of teachers agreed that homework should not be used as a disciplinary technique, however, pattern B teachers were not as strong. They both felt that corporal punishment was not appropriate. Both responses were very similar. Pattern A teachers indicated mild disapproval to assigning seats for pupils while pattern B teachers mildly approved.

The importance of homework was doubted by the pattern A teachers, while the other group mean response was so close to the midpoint as to indicate neutrality. Both groups indicated that homework should not be increased, however, the pattern B teachers were not as strong in their position. The same was true with the use of homework as a disciplinary tool. Pattern A teachers appeared to feel more strongly that homework which was handed in early should not be graded any more leniently than work turned in on time.

Both groups agreed that audiovisual equipment was not being used excessively, however, neither group would increase the current emphasis. Pattern A teachers agreed with each of these positions less strongly than pattern B teachers. Both groups mildly and equally disagreed that grammar and spelling errors should affect course grades in all subject areas. Pattern B teachers agreed, but less strongly than the other group, that there was a common core of materials and skills that all pupils should master regardless of their later plans.

Summary

Two sets of patterns were described in this chapter. One set was of four pupil patterns in which pairs of patterns were related by shape. Of the four patterns, the first and third patterns were found to be opposites. For example, pattern 1 had the highest mean grade point average, fewest absences but the pupils were more dogmatic. Pattern 3 was the reverse. The two patterns had opposite extremes on nine of the teaching mechanics items. The pattern 3 mean responses appeared to be somewhat more traditional than the pattern 1 responses on the teaching mechanics items. The third pattern was the most divergent pattern from the mean responses of the total group.

The second pattern was generally located in between the other three patterns so that it had few descriptors. It was, however, the oldest group and had the lowest covert hostility scores. Their fathers were younger and less well educated.

The fourth pattern was the most convergent of the pupil patterns. This group tended to be more in agreement with the total pupil sample than any other group on the teaching practices items. The pupils came from families with the most divorce, most children, and oldest fathers.

The second set of patterns described in this chapter was drawn from teacher profiles. Two patterns finally emerged from the 51 profiles. The pattern A teachers were more dogmatic and hostile as indicated by the three scales. However, pattern A teachers appear to be less directive than pattern B teachers in relations with pupils. This is indicated by the moderate positions taken by the pattern A teachers on items such as:

i. Homework is essential to understanding,

2. Assigned seating promotes good discipline, and
3. Teacher should rapidly respond to students who are beginning to experience difficulty.

Neither the teacher nor the pupil patterns which were obtained contained any striking similarities to the patterns identified by Heil, et al. (1960). The greatest congruence appeared to exist between pupil pattern 1 and the type which Heil labeled as strivers. The congruence was based on the achievement orientation expressed in both patterns. Neither study produced patterns which characterized one of the sexes. The nature of the variables were so different in the two studies, considerable congruence was not expected.

CHAPTER V

DYAD ANALYSIS

Four pupil patterns and two teacher patterns were described in Chapter IV. These patterns provided evidence that there were groups of pupils (and teachers) who had similar characteristics as determined by the inventories. With the identification of patterns the investigator sought to determine what relationships, if any, existed between the pupils as representatives of the pupil patterns and the teachers as individuals as well as the teachers representative of the teacher patterns. The nature of the relationships that were sought are explicitly stated in the third and fourth research questions:

> Do pupils who have similar characteristics choose the same teachers as effective?
>
> Do similar pupils, when making several choices, choose teachers who are similar in type?

Chapter V is divided into two major sections. Each section will focus on one of these two research questions. Relationships between pupil types and individual teachers are considered in the first section; relationships between the teacher types and pupil types are presented in the second section.

Evidence Related to the Third Research Question

This section is focused on relating pupil types to individual teachers. The first section is organized into three parts. The first part examines the pupil ratings of teachers in relation to pupil similarity to the four obtained patterns. The second part examines the relationships between the nature of the pupil ratings of selected teachers and selected characteristics of those teachers. The third part summarizes the findings.

Relationships with Individual Teachers.--If dyadic relationships are influencing the ratings that the teachers received from pupils, and if the patterns that were identified in Chapter IV are relevant to the dyadic relationship, then the ratings should be related to the pupil types. Each pupil was characterized by four indexes of similarity which measured the extent of congruence between each of the four patterns and the pupil's profile. If a teacher were preferred by a specific pupil type, then the pupils with close fits on that pattern should give the teacher preferred ratings, while other pupils with poorer fits would rate the teacher less highly. Thus the nature of preference of pupils who represented each type would be reflected in the correlation coefficient between pupils similarity to each pattern and their ratings for each teacher.

The measures that were taken were such that a positive correlation indicated that pupils of a given type showed a preference for the teacher while a negative correlation indicated that the pupils tended to select other teachers in preference to the one being analyzed. As described in Chapter IV, the index of similarity was based on the extent of congruence between the pattern profile and the individual's profile, therefore, the smaller the numeric value of the index, the better was the fit. The preference ratings of the teachers were based on responses a pupil made to the inventory item:

> Which of your current teachers most effectively puts across the material in class? To put it in a different way, which teacher best presents things so that they make the most sense to you?

The pupil continued to select from his current teachers until each teacher had been selected. The order that the pupil placed the teacher represented a rank ordering of the teachers. The highest ranked teacher was given a rank of 1 and the lowest ranked teacher was given a rank equal to the number of teachers that the pupil ranked. Pupils reported four to six teachers in this section

Because of the varying number of teachers reported by the pupils, the ratings were adjusted to take into account the variation in the total number ranked by each pupil. A rank of "4" given by a pupil who had six teachers was likely to mean something greatly different from a rank of "4" given by a pupil with four teachers. The former indicated that the teacher was ranked neither high nor low while the latter clearly placed the teacher in the least preferred category for that pupil. In order to reflect these differences the following adjustment was made so that the ranks of groups of pupils with differing numbers of teachers could be pooled.

Each of the existent total number of ranks (four, five, and six) was adjusted to a scale with a midpoint of seven. For a pupil who had five different teachers, the third-ranked teacher was the midpoint. Therefore ranks of three were adjusted to seven and the other ranks were adjusted as follows: the second-ranked teacher was adjusted to five and the first ranked teacher was adjusted to three. Ranks four and five were adjusted to nine and eleven respectively. For the pupils who rated four or six teachers, the midpoint of each set of ranks was also adjusted to seven. The ranks were then assigned values around that midpoint such that for a set of ranks involving four teachers, the second-ranked and third-ranked teachers were adjusted to six and eight respectively in order to obtain a midpoint of seven. Each neighboring rank was assigned an adjusted value which was two units higher (or lower) than the one on either side.

This process had the effect of adjusting all sets of ranks to a common midpoint. It further resulted in maintaining the same relative distance between ranks. Using this procedure, the highest-ranked teacher who was chosen as one of six alternatives received a higher adjusted rank than did the first-ranked teacher of five alternatives. This feature is appropriate in light of the fact that a pupil who was choosing from among six teachers is more likely to have greater preference for his first choice than he would if he only had five of these teachers from which to choose. Table 18 presents the matrix for determining the adjusted rank as a function of the rank assigned by the pupil and the total number of teachers that the pupil ranked.

Preference for a teacher was reflected by a low numeric value on the preference rating, while lack of preference was indicated by larger numbers. The preference rating might be defined as the rank given by a pupil to a teacher on the basis of an item on the pupil inventory which was adjusted to a midpoint of seven and a variance which was a function of the number of teachers which the pupil ranked.

TABLE 18

Table for Adjusting Pupil Assigned Ranks in Relation to the Number of Teachers Ranked

Total Number of Ranks	Pupil Assigned Rank 1	2	3	4	5	6
	Adjusted Rank (Preference Rating)					
4	4	6	8	10		
5	3	5	7	9	11	
6	2	4	6	8	10	12

Preference ratings and indexes of similarity for pupils who rated each of the 51 teachers were correlated. A specific pupil was involved once per correlation computation for each teacher whom he rated. Table 19 presents the correlations between each of the patterns and the preference ratings for each of the teachers. Correlations large enough to have values of $p < .05$ are designated by the letter "a." Sixteen correlations reached this level. From a table of correlations of the size of Table 19 (204 correlations) ten correlations might be expected to differ from zero at the $p < .05$ level by chance alone. Therefore, the number of sizable correlations was only slightly larger than the number which might be obtained by chance.

The four correlations per teacher appear to be related. The 16 significant correlations were distributed among six teachers. Two of the teachers had correlations ($p < .05$) with each of the four types of pupils and subsequently accounted for one-half of the sizable

TABLE 19

Teacher Sex and Indexes of Similarity, Correlation Between Pupil Indexes of Similarity and Preference Rating and Number of Cases by Teacher

Teacher Number	Sex	Teacher Similarity Index Teacher Pattern A	 Teacher Pattern B	Correlations by Pupil Pattern Pupil Pattern 1	 Pupil Pattern 2	 Pupil Pattern 3	 Pupil Pattern 4	Number of Cases
1	F	2.17	9.37	.31[a]	.31[a]	.30[a]	.30[a]	43
2	F	4.10	4.58	.36[a]	.38[a]	.34[a]	.30[a]	47
3	F	2.22	7.20	.37[a]	.36[a]	.25[b]	.18	32
4	F	1.67	9.04	.10	.31[b]	.37[a]	.35[a]	32
5	F	2.00	16.60	.17	.20[b]	.22[b]	.22[b]	49
6	F	5.75	6.29	.05	.32[b]	.03	.02	43
7	M	3.70	4.86	.21[b]	.22[b]	.21[b]	.20[b]	63
8	M	2.14	10.36	.21	.24[b]	.14	.07	36
9	M	3.28	19.72	.21[b]	.25	.06	.01	48
10	M	2.94	5.58	-.02	.07	.14	.17[b]	60
11	F	29.40	4.49	.18[b]	.18[b]	.18[b]	.18[b]	98
12	F	17.53	1.78	.28[b]	.24[b]	.13	.10	45
13	F	11.21	2.82	.19[b]	.29[b]	.13	.08	47
14	F	10.43	2.20	.22[b]	.21	.20	.21	38
15	M	2.04	17.07	-.33[b]	-.55[a]	-.66[a]	-.66[a]	20
16	M	2.73	15.53	-.25	.23[b]	-.17[b]	-.13	61
17	M	6.61	7.24	-.16[b]	-.24[b]	-.27[b]	-.28[b]	33
18	M	5.36	6.66	-.13	-.19	-.27[b]	-.30[b]	31
19	M	2.45	8.96	-.04	-.10	-.19[b]	-.27[b]	47
20	F	6.50	2.89	-.18	-.20[b]	-.21[b]	-.21[b]	48
21	F	2.31	17.45	-.26[b]	-.24[b]	-.23[b]	-.14	35
22	M	14.95	1.28	-.28[b]	-.27[b]	-.26[b]	-.24[b]	35
23	M	9.01	5.58	-.20[b]	-.15	-.17	-.24[b]	46
24	F	10.98	2.46	-.23[b]	-.19	-.10	-.03	45
25	F	1.75	7.13	.20	.22	.22	.16	33
26	F	1.46	12.29	.22	.13	.11	.00	28
27	F	1.32	7.23	.07	.10	.15	.20	29
28	F	1.84	8.17	.00	.01	.05	.07	70
29	M	2.37	12.84	.02	.02	.04	-.01	24
30	M	2.18	7.52	-.04	-.02	.05	.07	50
31	F	15.05	1.57	.08	.12	.14	.17	38
32	F	6.68	3.71	.12	.12	.12	.10	35
33	M	17.87	2.30	.13	.08	-.02	-.08	43
34	M	17.64	2.63	-.11	-.07	.03	.13	38
35	M	3.60	19.45	-.20	-.21	-.22	-.22	27
36	M	1.41	11.70	-.17	-.17	-.20	-.20	41
37	M	4.52	10.44	.01	-.08	-.18	-.21	28
38	M	1.94	14.49	.09	.13	-.16	-.14	38
39	M	2.88	14.32	-.06	-.08	-.10	-.07	40
40	M	2.74	17.72	-.07	-.05	-.03	.01	37

Table 15 (continued)

Teacher Number	Sex	Teacher Similarity Index		Correlations by Pupil Pattern				Number of Cases
		Teacher Pattern A	Teacher Pattern B	Pupil Pattern 1	Pupil Pattern 2	Pupil Pattern 3	Pupil Pattern 4	
41	F	1.98	15.71	-.14	-.15	-.18	-.18	50
42	F	2.74	6.40	-.16	-.15	-.13	-.13	38
43	F	2.77	5.11	.11	-.13	-.07	-.17	51
44	F	4.28	6.41	-.11	-.11	-.13	-.14	29
45	F	3.23	11.01	-.07	-.08	-.06	-.11	46
46	F	3.56	20.87	.02	.00	-.02	-.04	44
47	M	7.20	4.15	-.11	-.14	-.15	-.15	35
48	M	19.60	2.22	-.04	-.03	-.03	-.04	54
49	M	18.87	2.34	-.02	-.02	.01	.02	69
50	F	5.83	3.30	-.13	-.12	-.07	-.04	42
51	F	7.07	2.39	-.10	-.10	-.11	-.08	32

[a]Correlation significant at $p < .05$
[b]Correlation significant at $p < .10$

correlations. In all cases, where a teacher had more than one of these correlations the signs and magnitudes of the correlations were similar. The inventories of the six teachers who had at least one correlation with $p < .05$ were examined for commonalities among the six. Of the six, four were females and two were males. Each female had positive correlations indicating that pupils of one or more types showed a preference for the teacher. The two male teachers had negative correlations associated with them which indicated that pupils of one or more types showed a lack of preference for the teachers (possible dislike). The six teachers represented a wide spectrum of specialization, training, age, etc. With the exception of sex no other characteristic, or group of characteristics, appeared to be associated with the teachers which might explain the correlations.

In summary, when the correlations between teacher preference, and pupil similarity to pupil patterns were analyzed only a few more significant correlations were obtained than could be expected by chance. Of the six teachers, who obtained significant correlations, four were female teachers, whose correlations indicated that pupils of certain types preferred them to other teachers. The remaining two teachers were males. Their correlations indicated that pupils of certain types preferred other teachers in preference to the ones being examined.

Relationships with Teachers Grouped by Sex.--In order to explore that possible difference in the reactions of pupils to the teachers on the basis of sex, the correlations were analyzed further. The teachers were examined on the basis of their sex, the teacher pattern with which each teacher had the better match, and the sign of the correlations between the pupil pattern match and preference rating. The magnitudes of the correlations were not of concern.

Established in the previous part was the fact that few correlations were large enough to meet traditional confidence levels. Therefore individual correlations were too near zero to offer much stability as individual correlations. What was needed were groups of correlations which were likely, as a group, not to reverse signs as a result of random error. For this purpose a significance level of $p < .10$ was used to identify groups of correlations from the table which could be used to produce a group of teachers who were preferred by pupils who fit the patterns and a group who were not preferred by pupils who fit the patterns. The correlations are identified in Table 19.

Chi-squares were computed for both teacher types. The expected percentages for each analysis were identical. They were based on the pooled frequencies by sex when teacher pattern match was ignored. Table 20 presents a summary of the Chi-square analyses. Neither were significant at $p < .05$. Therefore, the null hypotheses which stated that pattern match is not associated with the direction of pupil preference for teacher was not rejected in either case.

Evidence Related to the Fourth Research Question

The fourth research question is concerned with relating pupil types to teacher types. The evidence is organized into two parts. They reflect the two-stage analysis which was undertaken. The pupils' preference ratings of teachers were categorized into one of 16 categories or cells such that each cell represented a specific kind of pupil match to pupil pattern and teacher match to teacher pattern. As described in Chapter III the indexes of similarity for the pupil and teacher who comprised each dyad was assigned to cells based on the quartile into which each of the indexes of similarity fell. The dyadic relationship was therefore expressed by two measurements. One was the preference rating given by the pupil involved in the dyad about the teacher involved in the dyad. The second measurement in represented by the cell designation which indicated the nature of fit of the pupil profile to one of the pupil patterns and the teacher profile to one of the teacher patterns.

TABLE 20

Frequency Distribution of 61 Correlations by Sign of Correlation by Sex of Teacher by Teacher Patterns of Best Fit for Teacher and Chi-square Statistics

Correlation/ Observation	Teacher Pattern of Best Fit			
	Teacher Pattern A		Teacher Pattern B	
	Male	Female	Male	Female
Positive				
Observed	8.0	18.0	0.0	9.0
Expected	6.2	14.6	1.8	9.0
Negative				
Observed	13.0	3.0	6.0	4.0
Expected	14.8	4.3	4.2	4.0
Chi-square Value		1.92261		2.5714

Differences of pupil preference rating of teachers between cells or groups of cells which were too great to be attributable to chance would indicate that the person types represented by the patterns were associated with the pupil preference rating of teachers. The existence of non-chance differences would result in the examination of the cells to identify the intercellular relationships which were producing the differences. Therefore the results are reported in two parts. The first part deals with the overall analysis of each one of eight combinations of four pupil patterns and two teacher patterns. The second part deals with the analysis of intercellular differences when overall differences were found.

ation of the Overall Analysis --In order to test the eight sets of cells for variation between cells, a one-way analysis of variance was used. For each of the eight analyses the following null hypothesis was framed:

> The 16 cell means of pupil preference ratings of teachers do not differ among themselves.

The hypothesis was tested by evaluating the ratio of the mean squares of the variation between the 16 means and the variation within each cell. The two mean squares had 15 and 2,171 degrees of freedom, respectively.

The results of the analyses of variance for pupil congruence to pupil patterns and teacher congruence to teacher patterns are presented in Table 21. Using the teacher pattern A profile as the basis for categorizing the dyads resulted in the presence of significant variation among the preference rating means in one of the four analyses. Using pupil pattern 4 as the other basis for categorizing the dyads resulted in a significant F-ratio ($F = 11.5$, $p < .01$, d.f.=15,2171). None of the other three pupil patterns when used as the basis for assigning the dyads to the cells had significant variation between cell means. Therefore the hypothesis that the 16 cell means did not differ among themselves was retained for combinations of teacher pattern A and pupil patterns 1, 2, and 3. It was rejected for dyads categorized by teacher pattern A and pupil pattern 4. Pupil pattern 4 was further examined in the next part for the purpose of identifying the groups of cells which differed

TABLE 21

Summary of Analyses of Variance of Pupil Preference Between Cells by Pattern Combination

Pattern Combination/ Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Teacher Pattern A				
Pupil Pattern 1				
Between Cells	185	15	12.57	1.17
Within Cells	23,424	2,171	10.79	
Total	23,609	2,186		
Pupil Pattern 2				
Between Cells	114	15	7.62	.71
Within Cells	23,475	2,171	10.81	
Total	23,589	2,186		
Pupil Pattern 3				
Between Cells	177	15	11.85	1.10
Within Cells	23,435	2,171	10.79	
Total	23,612	2,186		
Pupil Pattern 4				
Between Cells	1,870	15	124.69	11.54**
Within Cells	23,452	2,171	10.80	
Total	25,323	2,186		
Teacher Pattern B				
Pupil Pattern 1				
Between Cells	276	15	18.45	1.71*
Within Cells	25,556	2,171	10.75	
Total	23,612	2,186		
Pupil Pattern 2				
Between Cells	257	15	17.15	1.60
Within Cells	23,337	2,171	10.75	
Total	23,595	2,186		
Pupil Pattern 3				
Between Cells	295	15	19.63	1.83*
Within Cells	23,298	2,171	10.73	
Total	23,592	2,186		
Pupil Pattern 4				
Between Cells	259	15	15.95	1.48
Within Cells	23,368	2,171	10.76	
Total	23,607	2,186		

*Significant at $p < .05$

**Significant at $p < .01$

When teacher pattern 3 was used to categorize the dyads, two of the four pupil patterns resulted in variation among the means large enough to give a $p < .05$. The null hypothesis was rejected for pupil patterns 1 and 3. The mean pupil preference ratings resulting from the use of pupil patterns 2 and 4 did not vary sufficiently to reject the null hypotheses.

An additional analysis was performed using each of the eight combinations of teacher and pupil patterns. In the analysis an a priori model was used to predict the relationships among the cells and the nature of the relationship between pattern congruence and preference rating. The earlier analyses made no assumptions concerning the nature of the relationships between preference ratings and congruence of pupils and teachers to their respective patterns. The supplementary analysis was designed with the following rationale. Dyads that are based on individuals who are in adjoining cells are similar to each other to some extent. Three groups of cells were pooled in order to determine if the inter-group variation was greater than chance.

The three groups were labeled high congruence, no congruence, and low congruence. They represented three degrees of fit across both pupil and teacher patterns. The high congruence group was comprised of three cells including the cell with the dyads which were on the highest quartile on both the pupil and teacher patterns and two cells which were adjacent to it. The two cells were those with either the teacher or pupil pattern fit in the highest quartile and the other pattern in the second quartile. This group was designed to represent a close fit between the patterns.

The no congruence group was analogous to the high congruence group except that it was at the other extreme of the quartiles. It represented the three cells which had the worst fits with the patterns. As the index of similarity gets larger, less can be assumed about the shape of the profile being compared with the pattern. Likewise as the differences get greater, the likelihood of similarity between profiles with similar sized indexes becomes less. At extreme values the index in no way identifies profiles that may be similar to each other. They do not represent a definable group. Therefore these profiles have been labeled no congruence because they differ so widely from the pattern and so widely among themselves.

The low congruence group was comprised of the cells which were located diagonally between the two other designated groups. These cells represented all four degrees of fit with each of the patterns. For example, the cell which contained the pupils with best fits who were in a dyad with teachers with poorest fits was included. The pupils with fits in the second high quartile who had dyads with teachers with the second lowest quartile are also incorporated. The other two cells which were included were those with teacher best fits, but pupil poor fits and finally teacher second best fit with pupil second degree of poor fit. Table 22 presents the ten cells that were used within the context of the configuration of cells that was initially presented in Table 4 when the rationale underlying the cell structure was explained.

TABLE 22

Cells Used in Analysis of Variance of
High, Low, and No Congruente
Groups

		Similarity on Teacher Pattern			
		Most			Least
	Most				
Similarity on Pupil Pattern		High	High	3	Low
		High	6	Low	8
		9	Low	11	No
		Low	14	No	No
	Least				

The three groups were analyzed to test the following null hypothesis:

> The means of pupil preference ratings of teachers for the three groups of cells do not differ among themselves.

The analysis of variance was performed on each of the eight sets of cells. The between groups sum of squares with two degrees of freedom was calculated. The error sum of squares was calculated for the intra-cell variation with approximately 1,354 degrees of freedom. The degrees of freedom varied slightly between the sets of cells. None of the analyses yielded results at $p < .05$. Table 23 contains the summary tables of the analyses of variance for pupil patterns in combination with teacher pattern A. The summary tables for teacher pattern B are found in Table 24.

In summary, two separate sets of analyses of variance were performed. The first and principal one was a generalized analysis which made no assumptions about the nature of relationships between pattern fits and pupil preference for teachers. One of the eight analyses was significant at $p < .01$. Two additional ones were significant at the .05 level however because of the increased likelihood that these significant at the .05 level might be due to chance alone, they were not analyzed in detail. Only the set of means for pupil pattern 4 and teacher pattern 1 was further analyzed because no other set had variation among cells at $p < .01$.

Since the generalized test of means is a relatively imprecise test, a supplementary analysis was calculated to insure against valuable information about the distribution being overlooked. The cells were group in a manner which prior theorization suggested mean differences. When the cells were combined and the analysis performed, no differences were identified which gave a $p < .05$.

Evaluation of Dyads Based on Teacher Pattern A and Pupil Pattern 4 Measurements.--One of the eight overall analyses was significant ($p < .01$) so that it was the only set of dyad measurements which warranted further exploration. The set which contained significant variation among the 16-cell means of pupil preference ratings of teachers was the one based on the teacher's index of similarity with Teacher Pattern A and the pupil's index of similarity with Pupil Pattern 4. The mean, standard deviation and number of dyads associated with each cell are presented in Table 25. Tables containing the analogous data for the other seven sets of dyad measurements are found in the Appendix.

Prior to the initial analyses it was hypothesized that if relationships were identified between pupil-teacher similarity to their respective patterns and pupil preference for teacher, then the

TABLE 23

Summary of Analyses of Variance of Pupil Preference Between Cells in A priori Groups by Pupil Patterns in Combination with Teacher Pattern A

Pupil Pattern/ Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Pupil Pattern 1				
Between Groups	40	2	19.92	1.82
Within Group/ Between Cells	77	7	10.99	
Within Cells	14,949	1,368	10.93	
Total	15,066	1,377		
Pupil Pattern 2				
Between Groups	38	2	19.14	1.75
Within Group/ Between Cells	28	7	4.10	
Within Cells	14,876	1,358	10.95	
Total	14,942	1,367		
Pupil Pattern 3				
Between Groups	8	2	4.04	.38
Within Group/ Between Cells	57	7	8.17	
Within Cells	14,540	1,355	10.73	
Total	14,605	1,364		
Pupil Pattern 4				
Between Groups	30	2	15.08	1.40
Within Group/ Between Cells	51	7	7.28	
Within Cells	14,350	1,335	10.75	
Total	14,431	1,344		

relationship would be one of two types: One potential type of relationship which might be obtained is characterized by the association of favorable pupil-preference ratings for teachers and class fits for

TABLE 24

Summary of Analyses of Variance of Pupil Preference Between Cells in A priori Groups by Pupil Patterns in Combination with Teacher Pattern B

Pupil Pattern/ Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Pupil Pattern 1				
Between Groups	11	2	5.33	.49
Within Group/ Between Cells	43	7	6.09	
Within Cells	14,363	1,314	10.93	
Total	14,417	1,323		
Pupil Pattern 2				
Between Groups	48	2	23.84	2.17
Within Group/ Between Cells	39	7	5.51	
Within Cells	14,662	1,336	10.97	
Total	14,749	1,345		
Pupil Pattern 3				
Between Groups	65	2	32.33	2.95
Within Group/ Between Cells	81	7	11.60	
Within Cells	14,767	1,349		
Total	14,913	1,358		
Pupil Pattern 4				
Between Groups	38	2	19.16	1.78
Within Group/ Between Cells	67	7	9.61	
Within Cells	14,524	1,353	10.73	
Total	14,629	1,362		

the pupils and teachers to their respective patterns. A poor fit on both patterns would be associated with less favorable preference ratings by the pupil. The second potential type of relationship is the

TABLE 25
Means, Standard Deviations, and Number of Dyads
by Cell Categorized Using Teacher Pattern A
and Pupil Pattern 4

Similarity to Pupil Pattern 4	Statistic	Similarity to Teacher Pattern A			
		Most			Least
Most	Mean	6.51	6.85	7.41	6.95
	S. D.	3.25	3.30	3.46	3.37
	N	137	144	132	159
	Cell No.	1	2	3	4
	Mean	6.75	7.46	6.66	7.03
	S. D.	3.36	3.28	3.14	3.24
	N	125	147	119	153
	Cell No.	5	6	7	8
	Mean	7.08	7.32	6.80	6.81
	S. D.	3.36	3.12	3.18	3.32
	N	137	130	133	135
	Cell No.	9	10	11	12
Least	Mean	7.33	6.94	7.01	6.79
	S. D.	3.20	3.21	3.31	3.25
	N	122	140	122	152
	Cell No.	13	14	15	16

reverse of the one above. It would be characterized by negative ratings associated with close fits and positive rating as the fits become less close.

The analyses of the eight sets of cells using the High, Low, and No Congruence Groups, were based on the above rationale. However, the supplementary analysis reported earlier suggested that as such relationships existed. An inspection of the cell means based on dyads measured from Teacher Pattern A and Pupil Pattern 4 suggested that the variation among the 16 cells which yielded a significant overall analysis of variance resulted from a pattern of variation which was consistent with the above rationale if the Congruence Group were modified. The data suggests that a ridge of low preference ratings exist. The ridge begins with cell 3 and continues through 6 and 10 to cell 13. The ridge indicates that as the dyads are less characterized by teachers who are similar to pattern A and pupils who are similar to pattern 4, then negative preference is reported. Table 26 presents the ridge in a format which shows how it deviates from a diagonal.

TABLE 26
Cells Used in Analysis of Dyads Based on
Teacher Pattern A and Pupil Pattern 4 Measurements

Similarity to Pupil Pattern 4	Similarity to Teacher Pattern A			
	Most			Least
Most	--	--	3	--
	--	6	--	--
	--	10	--	--
Least	13	--	--	--

In order to examine the differences between the four cells which have been designated, the ridge cells and the remaining 12 cells, the Scheffé method of post-hoc comparisons (Hays, 1963) was used. Scheffé's test was used to evaluate the hypothesis that the ridge differed from the remainder of the response surface. The specific null hypothesis which was tested was:

> The mean pupil preference ratings given to the teachers in the cells 3, 6, 10, and 13 do not differ from the ratings given in cells 1, 2, 4, 5, 7, 8, 9, 11, 12, 14, 15, and 16.

In addition the groups of cells on each side of the ridge were compared to determine if they differed from each other. If the group which was made up of dyads linking pupils and teachers with close fits to their respective patterns were higher than that would indicate that type 4 pupils preferred type A teachers. If the other group of cells, those made up of dyads linking individuals with the poorest fits for the respective patterns, then the evidence would indicate that type 4 pupils had a negative preference for type A teachers. The analyses were run and the results are presented in Table 27. The ridge was found to be significantly higher than the remainder of the response surface ($F = 29.05$, $F_{.01} = 25.5$). The groups of cells on each side of the ridge were not significantly different ($F = .03$). Based on these findings, the pupil preference ratings of teachers were related to pupil and teacher types involved.

TABLE 27

Results of Scheffé Test of Post-hoc Comparisons Between the Ridge Cells and Other Cells and Between Groups of Cells Separated by the Ridge

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Ridge	313.71	1	313.71	29.05
Groups	.33	1	.33	.03
Error	23,452.00	2171	10.80	

Specifically, these findings indicated that pattern A teachers who were described in Chapter IV as more dogmatic and hostile but less directive than other teachers are differentially preferred by pupils who have been categorized by pattern 4. Pupils of this type were characterized as more convergent with the attitudes of pupil-in-general than any other type, while coming from more affluent homes. Both the teachers and the pupils who best fit the patterns are more hostile than their peers. The two groups had similar positions on items which dealt with interrelationships between pupils and teachers. For example, they both indicated that pupils should not be given more homework and that teachers should seek to understand pupils' personal problems.

On items which were related to instructional techniques with little or no interpersonal dimension the pupils and teachers both agreed and disagreed. For example, they agreed that pupils should not have more homework. However, they are in disagreement about the value of audiovisual equipment. The type 4 pupils are more approving in relation to their peers while the type A teachers are less approving in comparison to their peers.

The analysis indicated that dyads based on interrelations between individuals with low similarity to one of the patterns or moderate similarity to both resulted in negative preferences. Furthermore, the dyads with close fits to the patterns and dyads with no fit to the pattern resulted in substantially the same ratings which were more favorable than the dyads described earlier. One explanation for these outcomes may be that pupils may be responding differently to one type of item such as those which dealt with interrelations between the pupil and the teacher. The disagreement over these items could result in negative preference ratings. If pupils were in disagreement on only a small porportion of the variables they would be categorized into the second and third quartiles rather than the fourth.

Summary

The relationships between the two teacher patterns and the four pupil patterns were analyzed. When the individual teachers' ratings were examined in light of the pupil fit with each of the four pupil patterns, only six of the 51 teachers had sizable ($p < .05$) correlations between pupil similarity indexes and preference ratings. Since the number of sizable correlations was not appreciably larger than the number which might be expected by chance, the overall conclusion must be that the pupil patterns as established by the pupil inventory are not demonstrably related to differences among pupil preference ratings of teachers. Furthermore, by focusing on the direction of the relationship as expressed by the sign (+ or -) of the correlation coefficient, no evidence was obtained that the relationship between pupil preference and pupil type might be confounded by teacher type and the sex of the teacher.

The teacher-pupil dyad can be characterized by each of eight combinations of four pupil patterns and two teacher patterns. The use of each combination provided evidence about the pupil type and teacher type implied by each pattern. Only one of the eight combinations produced sufficient variation among the 16 cells which was greater than chance. Dyads characterized by teacher pattern A and pupil pattern 4 produced the variation. Further analysis of the matrix indicated that type 4 pupils showed no strong preference for type A teachers. However, as teachers and pupils diverge from their patterns, a lack of preference is observed.

The pupils and teachers with the greatest discrepancy between profiles and the patterns gave responses which were not different from the responses given by the pupils and teachers with the least discrepancy between profiles and patterns. Such a result is unexpected because of the method by which the dyads were assigned to the 16 cells

The profiles in the lowest quartile exhibit considerable diversity. As pairs of profiles are known to be increasingly dissimilar to a pattern, less and less similarity can be expected between the profiles comprising a pair even if each has a similarity index that is numerically the same as the other. As profiles which are associated with the dyads comprising a cell become more and more divergent, the mean pupil preference rating should approach the preference rating grand mean. This outcome was not reflected by the 16 cell matrix based on teacher pattern A and pupil pattern 4.

CHAPTER VI

SUMMARY AND IMPLICATIONS

The preceding chapters outlined the rationale, procedures, and outcomes of a study whose objective it was to identify types of pupils and teachers and relate the types to pupil preference for teacher. The presence of types and the presence of interaction between types and pupil preference for teacher constitutes evidence which indicates that interactions between pupils and teachers are affected by characteristics of the individuals involved. The evidence, if found, would suggest that pupils had different expectations and needs, and therefore, they viewed the behavior of teachers differently. For example, a child who accepted sarcasm as an appropriate adult control technique would not be adversely affected by a teacher whose teaching style incorporated this technique. Another pupil who was repelled by sarcasm would probably be very conscious of the technique and reject the teacher because of her use of sarcasm. A third pupil might react with his own brand of sarcasm and thereby overtly challenge the teacher. Each of these pupils might be expected to view the teacher differently. The composite view of each pupil toward the teacher would be based on the interrelationships of a host of variables such as sarcasm in the illustration just given. The literature recognizes the presence of differential responses of pupils based on gross characteristics such as the middle-class child as contrasted with the poor child, the advantaged child as contrasted with the disadvantaged child, and the black child as contrasted with the white child. However, within each of these groups there is probably as much variance as between them.

This study was designed to examine the pupil preference for teacher as related to characteristics of pupils and teachers. It sought to identify the existence and nature of patterns of pupils and of teachers which were based on selected psychological and biographical information. After patterns were identified, the study was designed to examine the relationship between the pupil and teacher types implied by the patterns and pupil-perceived preference for teacher. Specifically the study sought evidence relevant to four research questions:

1. Are there groups of pupils who have similar characteristics, as determined by an inventory constructed for this study?

2. Are there groups of teachers who have similar characteristics, as determined by an inventory designed to parallel the inventory constructed for pupils?

3. Do pupils who have similar characteristics choose the same teachers as effective?

4. Do similar pupils, when making several choices, choose teachers who are similar in type?

The subjects used in this study were pupils and teachers of a medium-sized urban Florida public high school spanning grades nine through twelve. All teachers agreed to participate. They responded to the teacher instrument in small groups during their free period in a regular school day. Three days after the teachers responded to their instruments they administered the pupil instrument to the pupils in their homerooms. The pupils used their homeroom period and approximately 40 minutes of the first period to complete the instrument. The pupils were specifically informed that the completion of the instrument was voluntary, that staff members of the school would not see the completed forms, and that the instrument was part of a research study being carried on at the University of Florida.

Approximately 94 percent of the pupils enrolled in the school responded. A stratified random sample totalling 400 pupils was drawn to represent the school pupil population. The sample included 50 boys and 50 girls from each grade level, 9 through 12. All teachers on the staff of the high school were used in the analysis.

The data were studied by analyzing a sample of 96 pupils for recurring patterns. This sample was a subset of the previously mentioned stratified random sample of 400. The analysis was performed by means of a computerized procedure developed by Guertin (1966). His procedure systematically analyzed a set of profiles for profiles which were similar. Similarity was based on the factor structure of a transposed factor analysis of the profiles. The profiles which loaded heavily on a factor comprised a shape family. Shape families were then analyzed for clusters of profiles at different levels. A factor analysis of the sums of the squared distances between profiles was used to identify clusters.

within shape families. If sufficient profiles loaded heavily on a factor, then those profiles were pivot profiles for a pattern. The resulting pupil and teacher patterns obtained from the analyses were examined and contrasted in terms of manifest content. The two teacher patterns were contrasted with each other and the four pupil patterns with one another. Thus evidence relevent to the first and second research questions were obtained.

Evidence relevent to the third research question was sought by determining the strength of relationship between the pupil patterns and pupil preference rating for teachers. The data related to each teacher were analyzed separately. If a teacher were ranked consistently high by pupils most similar to a given pattern, then a significant positive correlation would result from correlating the teacher preference rating given by each pupil for each of his teachers with the measure of similarity between the pupil's profile and the given pattern. A negative correlation would result if the teacher were ranked consistently lower by pupils who had close fits with a given pattern. Four Pearson correlations, one for each pupil pattern, were generated for each teacher to indicate the relationships between the rating and each pupil pattern.

The fourth research question was answered by categorizing the measures of similarity into quartiles and obtaining all the combinations when the degree of pupil similarity varied across each of four pupil patterns independently of the two teacher patterns. The mean ranks given by the pupils in each cell were analyzed to determine if the variation associated with the cells was greater than chance. The variation was analyzed by computing a one-way analysis of variance of the mean ranks across cells. Where a significant different ($p = .01$) between the variation among the 16 means and variation around the 16 means was found, the nature of the difference was examined through the use of Scheffé's (Hayes, 1963) method for making post-hoc comparisons among means.

The pattern analysis of pupil profiles resulted in the identification of four pupil patterns in which pairs of patterns were related by shape. Of the four patterns, the first and third patterns were found to be opposites. For example, pattern 1 pupils had the highest mean grade point average, fewest absences, but the pupils were more dogmatic. Pattern 3 pupils were the reverse. The two patterns were at opposite extremes on nine of the teaching mechanics items. The pattern 3 pupils appeared to be somewhat more traditional than the pattern 1 pupils on the teaching mechanics items. The third pattern was the most divergent pattern from the total group.

The responses of pupils who defined the second pattern were generally located between the other three patterns so that it had relatively few items on which it was at one of the extremes. However, the pupils were an older group and had the lowest overt hostility scores. They had fathers who were younger and less educated than the fathers of other pupils.

The fourth pattern was the most convergent of the pupil patterns. The pupils of this pattern tended to be more in agreement with the total pupil sample than any other group on the teaching practices items. The pupils came from families with the most diverse, most children, and eldest fathers.

The pattern analysis of the teacher profiles resulted in the identification of two patterns. The pattern A teachers were more dogmatic and hostile as indicated by the three scales. However, pattern A teachers appeared to be less directive than pattern B teachers in relations with pupils. The correlational analysis of pupil preferences for each teacher and the extent to which the pupil's profiles were similar to each pattern resulted in 16 correlations at $\underline{p} < .05$. Sixteen correlations at $\underline{p} < .05$ is not appreciably greater than chance since 204 correlations were computed.

Evidence relevant to the fourth research question was sought by relating pupil preference for teacher to the dyadic relationship as measured by the pupil and teacher fits to their respective patterns. The teacher-pupil dyad can be characterized by each of eight combinations of four pupil patterns and two teacher patterns. The use of each combination provided evidence about the pupil type and teacher type implied by each pattern and how they were related to pupil preference for teacher. Only one of the eight combinations produced sufficient variation among the 16 cells which was greater than chance. Dyads characterized by teacher pattern A and pupil pattern 4 produced the variation. Further analysis of the matrix indicated that type 4 pupils showed a strong preference for type A teachers. However, as teachers and pupils diverged from their patterns, a lack of preference is observed. The pupils and teachers with the greatest discrepancy between profiles and the patterns gave responses which were not different from the responses given by the pupils and teachers with the least discrepancy between profiles and patterns.

The study has provided some evidence that pupil preference for teacher is related to types of pupils and teachers. The results are mixed and conclusions about the specific characteristics of types cannot be drawn from these results. While the process for identifying types was successful, several problems were surfaced which probably affect the utility of the pupil and teacher patterns. The problems can be classified into problems related to: (1) instrumentation and (2) analytic procedures.

The problems of instrumentation concerned the choice of variables, limited means of collecting data, and number of items which could be used. The selected variables represented a problem which is not easily solved. The problem can be solved through the initiation of a series of studies which would identify the types of variables that have the most significant influence on pupil perception of teacher. The identification of these variables would lay a stronger foundation on which to seek meaningful pupil and teacher types and subsequently define the relationship between them. The complexity of the problem is increased when the interaction effects of variables is considered. Two variables in isolation may be irrelevant; however together they become important. In the identification of teacher types a major subset of variables might be drawn from Flanders' interaction analysis the dimensions which are incorporated into the observation schedule would appear to be relevant; however, the relationships should be examined in light of the variable(s) to which obtained patterns might be related.

The limitations imposed by the method of data collection are related to the availability of measurement devices and the relative cost of each in terms of respondent's time, invasion of privacy, and features which would lessen the respondent's willingness to participate. As in all research activity there is a constant interplay between the variables used in research, the existence of measurement devices, and the costs associated with the measurement devices. The selection of variables is influenced strongly by the availability of measurement devices that are appropriate to the specific population. Likewise, the availability of devices is a function of the perceived need to measure specific variables in a given setting. A major problem which faced the investigation in the present study was the lack of relevant scales which could be used to obtain voluntary measurement from public high school pupils.

An alternative method of obtaining patterns was considered but finally rejected. It entailed the use of individual items rather than scales. This approach was rejected because only one hundred items could be used. This limitation resulted from storage restraints that were programmed into the computer program. In addition, the use of individual items would exaggerate effects of response style and the relative instability of individual items.

The problems of analytic procedures stemmed from the ways that the pattern profile was determined, the range of weights for each pattern profile point, and the way the index of similarity was computed. The pattern profile was determined by averaging the measurements on each variable that were associated with the pivot profiles for a given pattern. Each pivot profile therefore contributed equally to the pattern profile on every point. As a result of random error, each pivot profile will deviate from the other pivot profiles on a small number of points even if the group of pivot profiles represent a group of similar persons. In addition pivot profiles of dissimilar individuals may be included because of random error which results in apparent similarity of the individual's profile with the other pivot profiles. The error associated with individuals who are similar might be expected to be normally distributed about the true mean. Likewise, the true mean might be estimated by the sample mean of the individuals.

The second source of error constitutes a more disturbing factor. Since it is the result of improper classification of the profile as a pivot profile, the distribution of the obtained scores is not a function of the pivot profile means. Instead each profile's error is related to a pattern which is unknown. The inability to identify the appropriate pattern to which a profile in fact is associated leaves the investigator only one potential distribution to which the profile can be associated. This distribution is the total group distribution. For any given point the deviation between the pattern point and the profile point is more likely to be in the direction of the total group mean rather than in the portion of the total group distribution which has the pattern mean between the point and the total group mean. This is illustrated in Figure 4.

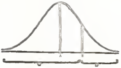

FIGURE 4
Distribution of Scores of a Single Variable Around the Total Group Mean

A Total Group Mean
B Pattern Mean

In Figure 4 the point labelled A represents the mean of all profiles in the analysis. B represents the mean of a subset of profiles of individuals who are similar and therefore are correctly assigned to the pattern. Range I represents the values which a profile point may assume that are deviant from B and in the direction of, and past, the total mean (A). Range II represents the values that are deviant from B but are located so that B is always between the value and the total mean (A). For a given point, or points, the deviations resulting from profile points which are improperly categorized with the pattern will more likely be in Range I rather than Range II. Therefore, if pivot profiles are a mixture of properly assigned pivot profiles with random error and improperly assigned profiles then the mean of the obtained pivot profiles will be biased toward the total group mean.

The extent of the bias is not known. Its calculation requires statistical theory and skills beyond those possessed by this investigator. However, prior to the mathematical determination of the extent of bias, the procedure might be modified to systematically lessen the effects of values which are most deviant either through their elimination or a process of differential weighting.

The range of weights which were associated with the pattern profiles was very restricted. The largest weight was 3.18 and over two-thirds of the rest were near 1.00. The weight was defined as the ratio between the variances of all profiles and the pivot profiles on each profile point. It could be viewed as an F-ratio between the two groups. The size of the weights suggests that the profiles were not very stable. This inference is based on the fact that while the profiles were similar as a group almost all points have deviant values which increased the size of the variance for the pivot profiles. Other applications of the pattern analysis procedure have resulted in solutions in which the largest weights approached 10. These analyses have been frequently characterized by the use of variables which were known to be highly relevant and more precise data than those utilized in the present study.

The third problem concerned the procedure for calculating the index of similarity. The calculation used in the present study was weighted sum of the squared difference between an individual profile and a pattern profile. Evidence has been obtained by Guertin (1969) that the square root of the weighted sum is more appropriate because it provides for greater discrimination between patterns than five of the most widely used indexes of similarity including the one used in this study

In spite of the problems identified above, the study has provided some evidence that empirically derived patterns which imply pupil and teacher types affect pupil preference for teacher. The sex of the teachers appeared to be interacting with type in influencing preference. This question should be studied as part of the overall problem of what variables are relevant. The negative preference expressed by pupils whose profiles were poor matches with pattern 4 should be examined more closely using variables which have demonstrated relevance.

Considerable effort should be placed on systematically defining dimensions of pupils and teachers which yield meaningful types. The lack of a firm basis upon which to build a balanced set of variables was the major difficulty perceived by the investigator in the present study. The presence of irrelevant variables in a study of dyadic relationship means that precious space has been wasted in the data collection device(s) as well as the analysis which prevents other variables, potentially relevant variables, from being studied. The investigator recommends that further efforts to identify patterns of pupils and teachers and the subsequent effort to relate them to other variables should be part of a systematic study to determine relevant variables and secure adequate measurement devices.

BIBLIOGRAPHY

Adorno, T. W., et al *The authoritarian personality* New York: Harper, 1950.

Amidon, E. J & Flanders, N A The effects of direct and indirect teacher influence on dependent-prone student learning geometry *J educ Psychol*, 1961, *57*, 286-291

Barr, A. S. The measurement and prediction of teacher efficiency a summary of investigations *J exp Educ*, 1948, *16*, 203,283

Bendig, A. W. Factor analytic scales of covert and overt hostility. *J. Consult Psychol*, 1962, *26*, 200

Biddle, B. J. Contemporary research on teaching affectiveness New York: Holt, Rinehart, & Winston, 1964

Bush, R. N *The teacher-pupil relationship* New York Prentice-Hall, 1954.

Cattell, R B r_p and other coefficients of pattern similarity *Psychometrika*, 1949, 14, 279-298

Christensen, C M Relationships between pupil achievement, pupil affect-need, teacher warmth, and teacher permissiveness *J educ Psychol*, 1960, *51*, 169-174.

Cogan, M L The behavior of teachers and the productive behavior of their pupils I "Perception" analysis *J exp Educ*, 1958, *27*, 89-105 (a)

__________. The behavior of teachers and the productive behavior of their pupils II "Trait analysis" *J exp Educ*, 1958, *27*, 106-124 (b)

Cronbach, L J & Gleser, C G Assessing similarity between profiles. *Psychol Bull*, 1953, *50*, 456-473

Domas, S J and Tiedeman, D V Teacher competence an annotated bibliography *J exp Educ*, 1950, *19*, 101-218

duMas, F M The coefficient of profile similarity *J clin Psychol*, 1949, *5*, 123-131.

Ellson, D G A method for identifying pattern clusters in battery profiles. *Amer Psychologist*, 1947, *2*, 425.

Fetto, N A Effectiveness--an elusive quality *Educ Dig*, 1962, *27*, 24-26

Flanders, N A *Teacher influence, pupil attitudes, and achievement* Cooperative Research Monograph, No. 12 (OE 25040), 1965.

Flanders, N. A. & Simon, Anita Teacher effectiveness In R. L. Ebel (Ed), *Encyclopedia of educational research* New York Macmillan, 1969 Pp 1412-1427

Gage, N L (Ed) *Handbook of research on teaching* Chicago Rand McNally, 1963

Gaertin, W H The search for recurring patterns among individual profiles *Educ psychol Meas* , 1966, *26*, 151-165

__________ Factor analysis of interprofile distances. Paper read at Amer Educ Res Assoc , Los Angeles, February, 1969

Haggard, E A *Intraclass correlation and the analysis of variance* New York: The Dryden Press, 1958

Hays, W L *Statistics for psychologists*. New York Holt, Rinehart, and Winston, 1963

Heil, L M , et al *Characteristics of teacher behavior and competency related to achievement of different kinds of children in several elementary grades* Cooperative Research Project SAE 7285, Washington, D C U S Dept of HEW, OE, 1960

Helmstadter, G C An empirical comparison of methods for estimating profile similarity *Educ psychol Meas* , 1957, *17*, 71-82

Holland, J L , Krause, A H , Nixon, M E , & Trembath, M F The classification of occupations by means of Kuder interest profiles I The development of interest groups *J appl Psychol* , 1953, *37*, 263-269

Howsam, R B *Who's a good teacher? Problems of progress in teacher evaluation* Calif Teachers Assoc , 1960

Kelly, E L & Fiske, D W *The prediction of performance in clinical psychology* Ann Arbor University of Michigan Press, 1951

Kendall, M G *Rank correlation methods* London Griffin, 1948

Kuder, G F *Kuder preference record--occupational* Chicago Science Research Assoc , 1956

Lewis, E. C. Student-teacher interaction as a determiner of effective teaching. Cooperative Research Project, SAE 8415, Washington, D. C. U. S. Dept. of HEW, OE, 1960.

Mahalanobis, P. C. On the generalized distance in statistics. Proc. national Inst. Sci., India, 1936, 12, 49-58.

McQuitty, L. L. Method for selecting patterns to differentiate categories of people. Educ. psychol. Meas., 1961, 21, 85-94. (a)

__________. Typal analysis. Educ. psychol. Meas., 1961, 21, 677-96. (b)

__________. Rank order typal analysis. Educ. psychol. Meas., 1963, 23, 55-61.

Medley, D. M. Teacher personality and teacher-pupil rapport. J. teacher Educ., 1961, 12, 152-156.

Medley, D. M. & Mitzel, H. E. Some behavioral correlates of teacher effectiveness. J. educ. Psychol., 1959, 50, 239-246.

Meriam, J. L. Normal school education and efficiency in teaching. (Teachers College, Columbia University, Contributions to Education, No. 1), New York: Teachers College, Columbia University, 1906.

Mitzel, H. E. Teacher effectiveness. In C. W. Harris (Ed.), Encyclopedia of Educational Research. New York: Macmillan, 1960. Pp. 1482-1486.

Mitzel, H. E. & Medley, D. M. Pupil growth in reading--an index of effective teaching. J. educ. Psychol., 1957, 48, 227-239.

Nunnally, J. O. The analysis of profile data. Psychol. Bull., 1962, 59, 311-319.

Osgood, C. E. & Suci, G. A measure of relation determined by both mean difference and profile information. Psychol. Bull., 1952, 49, 251-262.

Pearson, K. On the coefficient of racial likeness. Biometrika, 1928, 18, 105-117.

Rabinowitz, W. & Travers, R. M. W. Problems of defining and assessing teacher effectiveness. Educ. Theory, 1953, 3, 212-219.

Rao, C. R. Advanced statistical methods in biometric research. New York: John Wiley and Sons, 1952.

Remmers, H. H. Report of the Committee on the criteria of teacher effectiveness. Rev. educ. Res., 1952, 22, 238-263.

Remmers, H. H. Second report of the committee on criteria of teacher effectiveness. *J. educ. Res.*, 1953, *46*, 641-658.

Rokeach, M. *The open and closed mind.* New York: Basic Books, 1960.

Ryans, D. G. Notes on the criterion problem in research with special reference to the study of teacher characteristics. *J. Genet. Psychol.*, 1957, *91*, 33-61.

__________ *Characteristics of teachers.* Washington, D. C.: American Council on Education, 1960.

Sakoda, J. M. Osgood and Suci's measure of pattern similarity and Q technique factor analysis. *Psychometrika*, 1954, *19*, 253-256.

Sawrey, W. L., Keller, L., and Conger, J. J. An objective method of grouping profiles by distance functions and its relation to factor analysis. *Educ. psychol. Measmt.*, 1960, *20*, 651-673.

Silberman, H. F. Effects of praise and reproof on reading growth in a non-laboratory classroom setting. *J. educ. Psychol.*, 1957, *48*, 199-206.

Soar, R. S. The study of presage-process-product relationships--implications for classroom process measurement. Paper read at Amer. Educ. Res. Assoc., Chicago, February, 1968.

__________ Observed teacher-classroom behavior and changes in pupil achievement, creativity and anxiety. Paper read at Amer. Psychol. Assoc., New York, September, 1967.

Stephenson, W. A statistical approach to typology, the study of trait-universes. *J. clin. Psychol.*, 1950, *6*, 26-38.

Thiesen, J. W. A pattern analysis of structural characteristics of the Rorschach test in schizophrenia. *J. consult. Psychol.*, 1952, *16*, 365-370.

Wallen, N. E. *Relationships between teacher characteristics and student behavior: part 3.* Final Report, Cooperative Research Project #2-10-013, Washington, D. C.: U. S. Dept. of HEW, OE, 1964.

Wallen, N. E. & Wodtke, K. H. *Relationships between teacher characteristics and student behavior: part I.* Final Report. Cooperative Research Project #2-10-013, Washington, D. C.: U. S. Dept. of HEW OE, 1963.

Webster, H. A note on profile similarity. *Psychol. Bull.*, 1952, *49*, 538-539.

Withall, J. G. Development of a technique for the measurement of social and emotional climates in classrooms. *J. exp. Educ.*, 1949, *17*, 347-361.

APPENDIX

Teacher's Opinion Inventory

DIRECTIONS. In the following pages you will find a series of questions which you are requested to answer carefully and honestly. This inventory is part of a research study being done at the University of Florida, and the completed inventories will be picked up by the investigator and taken back to Gainesville. No other members of the staff will see your answers or have access to the information you give. It will be impossible for anyone to identify individuals by reading the report of this study.

THE IMPORTANCE OF SINCERE AND HONEST ANSWERS CANNOT BE OVERSTRESSED.

Either circle the correct answer or fill in the blank as required.

Sex . . . . male
female

Grade level which you most frequently teach (if there is some doubt in your mind, give the best answer possible)
9
10
11
12

Number of years of teaching experience . . ________

Number of years of teaching experience at RIVIERA BEACH HIGH SCHOOL . . . . . . ________

Age . . . . ________

Date of birth . . . . ____/____/____

Place of birth . . . . city ________
state ________

Were your parents separated or divorced before your 18th birthday . . . . yes
no

Number of brothers and sisters who reached the age of 5 . . . .
0
1
2
3
4
5
more than 5

Number of brothers older than you who reached the age of 5 . . . .

4
5
more than 5

Number of sisters older than you who reached the age of 5 . . . .

0
1
2
3
4
5
more than 5

Your father's birthdate . . . . ______/______/______
month day year

Your mother's birthdate . . . . ______/______/______
month day year

Your father's occupation on your 18th birthday . . . . ____________________

Did your mother work outside the home for 5 or more years during the first 18 years of your life . . . .

yes
no

if yes, your mother's occupation . . . ____________________

What is the highest grade your father attended at school . . . .

6 or below
7
8
9
10
11
12
college

What is the highest grade your mother attended at school . . . .

6 or below
7
8
9
10
11
12
college

Did you tend to have regular part-time employment while you were attending school (pre-college schooling)

yes
no

When you were 18, what occupation did you intend to enter when you had completed your education . . . . ________________

Highest degree currently held . . . . Associate of Arts
Bachelor of Arts
(or equivalent)
Master of Arts
(or equivalent)
Doctorate

What are the names of the five courses that you most frequently teach? Give the names of the courses (i.e., Algebra 1) and the grade level of the majority of the students who take the courses (i.e., 9). Finally, estimate the percent of your teaching load which the course represents. If, for example, you have taught two sections of Algebra I for the past several years, it would represent 2/5 of your teaching load or 40 percent.

Course name	Grade level of majority of students taking course	Percent of teaching load over last several years
1. ________	________	________
2. ________	________	________
3. ________	________	________
4. ________	________	________
5. ________	________	________

In research work of this kind, one of the complications is the student who attempts to be "cute' by giving falsified responses. In order to help us combat this problem, please list the names of any students who you feel might be inclined to fake answers. The responses of such students will be carefully analyzed to see if any discrepancies are discernable. These students may be "clowns" or hostile children who are proud when they can put something over on their teachers or others in authority.

First Name	Mid. init	Last Name	Grade Level
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

List below the names of students whose approach to life or to the problems in the school situation is most similar to your own. These are students who might, for example, approach a subject in school with the same kinds of questions that you would have, or these might be students whose actions and reactions to the problems that face all of us are frequently similar to what you think you would do in the same situation.

List at least five students from the students that you have this school year or that you had last year. Do not list students that have graduated or for some reason have left school

First Name	Mid. Init.	Last Name	Grade Level
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

DIRECTIONS On the following pages is a list of statements about many different things. After each statement there is a place for you to show how much you agree or disagree with the statement. We have tried to cover many different and opposing points of view. You may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others. Whether you agree or disagree with any statement, you can be sure that many students feel the same as you do. Since there are no right or wrong answers, the best answer is your own personal opinion.

1	2	3	4	5	6
I Agree Very Much	I Agree on the Whole	I Agree a Little	I Disagree a Little	I Disagree on the Whole	I Disagree Very Much

REMEMBER, MARK EVERY STATEMENT!!!

39. The United States and Russia have just about nothing in common. 1 2 3 4 5 6

40. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent. 1 2 3 4 5 6

41. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups. 1 2 3 4 5 6

42. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes. 1 2 3 4 5 6

43. Man, on his own, is a helpless and miserable creature. 1 2 3 4 5 6

44. Fundamentally, the world we live in is a pretty lonesome place. 1 2 3 4 5 6

45. Most people just don't give a "damn" for others. 1 2 3 4 5 6

46. I'd like it if I could find someone who would tell me how to solve my personal problems. 1 2 3 4 5 6

47. It is only natural for a person to be rather fearful of the future. 1 2 3 4 5 6

48. There is so much to be done and so little time to do it in. 1 2 3 4 5 6

49. Once I get wound up in a heated discussion, I just can't stop. 1 2 3 4 5 6

50. In a discussion, I often find it necessary to repeat myself several times to make sure I am being understood. 1 2 3 4 5 6

51. In a heated discussion, I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying. 1 2 3 4 5 6

52 It is better to be a dead hero than to be a live coward 1 2 3 4 5 6

53 While I don't like to admit this even to myself, my secret ambition is to become a great man like Einstein, or Beethoven, or Shakespeare 1 2 3 4 5 6

54. The main thing in life is for a person to want to do something important. 1 2 3 4 5 6

55. If given the chance, I would do something of great benefit to the world 1 2 3 4 5 6

56. In the history of mankind, there have probably been just a handful of really great thinkers. 1 2 3 4 5 6

57 There are a number of people I have come to hate because of the things they stand for 1 2 3 4 5 6

58. A man who does not believe in some great cause has not really lived 1 2 3 4 5 6

59. It is only when a person devotes himself to an ideal or cause that life becomes meaningful 1 2 3 4 5 6

60. Of all the different philosophies which exist in this world, there is probably only one which is correct 1 2 3 4 5 6

61. Most people just don't know what's good for them. 1 2 3 4 5 6

62. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person 1 2 3 4 5 6

63. When it comes to differences of opinion in religion, we must be careful not to compromise with those who believe differently from the way we do. 1 2 3 4 5 6

64. In times like these, a person must be pretty selfish if he considers primarily his own happiness. 1 2 3 4 5 6

65. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does. 1 2 3 4 5 6

66. In times like these, it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp. 1 2 3 4 5 6

67 A group which tolerates too much differences of opinion among its own members cannot exist for long. 1 2 3 4 5 6

68. There are two kinds of people in this world those who are for the truth and those who are against the truth 1 2 3 4 5 6

69. My blood boils whenever a person stubbornly refuses to admit he's wrong. 1 2 3 4 5 6

70. A person who thinks primarily of his own happiness is beneath contempt. 1 2 3 4 5 6

71. Most of the ideas which get printed nowadays aren't worth the paper they are printed on. 1 2 3 4 5 6

72. In this complicated world of ours, the only way we can know what's going on is to rely on leaders or experts who can be trusted. 1 2 3 4 5 6

73. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects. 1 2 3 4 5 6

74. In the long run, the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own 1 2 3 4 5 6

75. The present is all too often full of unhappiness. It is only the future that counts. 1 2 3 4 5 6

76. If a man is to accomplish his mission in life, it is sometimes necessary to gamble "all or nothing at all." 1 2 3 4 5 6

77. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on. 1 2 3 4 5 6

78. It is better to be a dead hero than to be a live coward. 1 2 3 4 5 6

79. Most people just don't know what's good for them. 1 2 3 4 5 6

80. Students are being given too much homework. 1 2 3 4 5 6

81. Teachers should be quick to respond to students when they are experiencing difficulty with some topic. 1 2 3 4 5 6

82. Teachers should attempt to understand individual student's personal problems. 1 2 3 4 5 6

83. The proper amount of homework can be the best means to understanding your work. 1 2 3 4 5 6

84. A teacher should devote most of the class time to helping individual students. 1 2 3 4 5 6

85. Movies, filmstrips, and other audiovisual equipment should be used whenever possible. 1 2 3 4 5 6

86. Movies, filmstrips, and other audiovisual equipment are now being used too much. 1 2 3 4 5 6

87. In every course, the grammar and spelling in classwork and homework should affect the grade given. 1 2 3 4 5 6

88. The smarter students should be expected to do more for the same grade than their classmates. 1 2 3 4 5 6

89. Assigning seats to students rather than letting them sit where they wish is a good way for the teacher to maintain proper discipline. 1 2 3 4 5 6

90. Schoolwork that is handed in late should be graded down because it was late. 1 2 3 4 5 6

91. Schoolwork that is handed in early should be graded just a little bit easier because it was early 1 2 3 4 5 6

92. The quieter the class, the better the teacher can do the job of teaching. 1 2 3 4 5 6

93. Regular class recitation builds confidence in the students and helps them to be better speakers. 1 2 3 4 5 6

94 The lowering of a student's grade is an effective and fair means of punishing misbehavior. 1 2 3 4 5 6

95. Teachers should handle their own disciplinary problems and should refrain from sending misbehaving students to the office. 1 2 3 4 5 6

96. Paddling is an acceptable means of punishing a misbehaving student. 1 2 3 4 5 6

97. Requiring extra schoolwork from students who misbehave is a proper and effective form of punishment. 1 2 3 4 5 6

98. There are certain things which all students should learn while in school regardless of what their future plans are. (Grammar, some history, math, government, reading might be examples.) 1 2 3 4 5 6

99. If students were given more outside school work, they would learn much more 1 2 3 4 5 6

100. I can think of no good reason for ever hitting anyone. 1 2 3 4 5 6

101. If somebody hits me first, I let him have it. 1 2 3 4 5 6

102. I get into fights about as often as the next person 1 2 3 4 5 6

103. I seldom strike back, even if someone hits me first. 1 2 3 4 5 6

104. If I have to resort to physical violence to defend my rights, I will. 1 2 3 4 5 6

105. When I really lose my temper, I am capable of slapping someone. 1 2 3 4 5 6

106. I have known people who pushed me so far that we came to blows. 1 2 3 4 5 6

107. I am always patient with others. 1 2 3 4 5 6

108. When I disapprove of my friends' behavior, I let them know it. 1 2 3 4 5 6

109. I often find myself disagreeing with people. 1 2 3 4 5 6

110. Even when my anger is aroused, I don't use "strong language." 1 2 3 4 5 6

111. If somebody annoys me, I am apt to tell him what I think of him. 1 2 3 4 5 6

112. When I get mad, I say nasty things. 1 2 3 4 5 6

113. I generally cover up my poor opinion of others. 1 2 3 4 5 6

114. When I am angry, I sometimes sulk. 1 2 3 4 5 6

115. I am irritated a great deal more than people are aware of. 1 2 3 4 5 6

116. If someone doesn't treat me right, I don't let it annoy me. 1 2 3 4 5 6

117. I often feel like a powder keg ready to explode. 1 2 3 4 5 6

118. I carry a chip on my shoulder. 1 2 3 4 5 6

119. I can't help being a little rude to people I don't like. 1 2 3 4 5 6

120. I don't let a lot of unimportant things irritate me. 1 2 3 4 5 6

121. When someone is bossy, I do the opposite of what he asks. 1 2 3 4 5 6

122. When people are bossy, I take my time just to show them. 1 2 3 4 5 6

123. When I am mad at someone, I will give him the "silent treatment." 1 2 3 4 5 6

124. Although I don't show it, I am sometimes eaten up with jealousy. 1 2 3 4 5 6

125. I don't know any people that I downright hate. 1 2 3 4 5 6

126. If I let people see the way I feel, I'd be considered a hard person to get along with. 1 2 3 4 5 6

127. I commonly wonder what hidden reason another person may have for doing something nice for me. 1 2 3 4 5 6

128. I have had thoughts which make me feel ashamed of myself. 1 2 3 4 5 6

129. It depresses me that I don't do more for my parents. 1 2 3 4 5 6

130. I do many things that make me feel ashamed and sorry afterward. 1 2 3 4 3 6

131. Failure gives me a feeling of remorse. 1 2 3 4 3 6

132. I often feel that I have not lived the right kind of life. 1 2 3 4 5 6

This last page is reserved for any comments that you would like to make about this inventory. I am interested in its clarity and your judgment of its relevance. Anything which you feel would be useful to me in understanding the data I have collected will be greatly appreciated. Information obtained here can do much to give me a certain degree of perspective about the unique situation that is Riviera Beach High School.

TABLE 28

Means of Pupil Responses to Selected Items
by Grade Level and Sex and Sample Size

Item Number	Boys 9th	Boys 10th	Boys 11th	Boys 12th	Girls 9th	Girls 10th	Girls 11th	Girls 12th
1	1.92	2.04	2.09	1.96	2.18	2.28	2.44	2.55
2	10.73	11.58	11.73	11.42	10.80	12.03	11.39	11.14
3	39.12	41.80	42.56	42.40	40.11	42.28	41.98	41.94
4	27.46	23.54	23.59	28.71	23.59	24.30	26.28	27.80
6	41.48	43.20	46.51	46.84	41.95	45.43	44.28	43.96
8	4.48	4.60	4.35	4.44	4.89	4.90	4.65	4.36
9	9.69	9.25	9.59	10.02	8.84	7.33	7.52	7.22
10	12.23	11.69	11.65	11.49	10.55	12.00	10.52	10.96
11	12.21	12.75	15.04	15.07	13.50	15.98	15.43	16.04
12	5.62	5.66	5.53	6.29	5.27	7.30	6.41	6.12
13	.79	1.14	1.10	1.22	.89	1.48	1.54	1.52
15	14.38	15.34	16.53	17.09	14.25	15.20	16.02	16.96
18	3.25	3.06	3.53	3.16	3.75	3.35	3.04	3.04
19	3.25	3.42	4.00	4.69	3.30	3.55	4.63	5.08
20	2.25	1.91	1.80	1.69	2.18	1.85	1.78	1.62
21	5.13	5.20	5.16	5.24	5.02	5.23	5.15	5.30
22	4.77	5.12	5.08	5.11	5.02	4.88	5.00	5.06
23	4.35	3.58	4.33	4.13	4.16	3.68	4.24	4.26
24	4.44	4.60	4.53	4.64	4.64	4.83	4.61	4.58
25	3.63	3.26	3.18	3.24	4.14	3.95	3.41	3.28
26	2.31	3.08	2.73	2.51	1.93	2.15	1.74	2.12
27	2.29	3.18	2.41	2.76	2.61	2.33	2.41	2.22
28	3.46	3.03	2.76	3.40	3.09	2.10	2.85	2.64
29	3.58	4.32	3.90	3.82	4.18	4.33	3.72	4.04
30	4.33	4.28	4.45	4.11	4.27	4.35	4.50	4.84
31	1.83	2.26	1.73	1.89	2.16	2.15	2.04	1.78
32	5.21	4.92	5.06	4.84	4.75	4.78	5.11	5.12
33	3.42	3.63	3.27	3.22	3.30	3.35	3.17	3.46
34	3.13	2.72	3.22	2.93	3.20	2.85	2.63	2.96
35	3.85	4.46	4.71	4.09	3.95	3.68	3.89	3.96
36	2.71	2.97	2.63	2.73	2.75	2.25	2.30	2.30
37	2.79	3.01	3.08	3.07	3.41	2.95	2.85	2.50
38	3.73	3.69	3.90	3.36	3.59	3.30	3.50	3.54
39	5.15	4.94	4.88	4.78	5.02	4.63	4.83	5.10
Sample Size	49	50	48	47	47	46	47	48

TABLE 29

Standard Deviations of Pupil Responses to Selected Items by Grade Level and Sex

Item Number	Boys				Girls			
	9th	10th	11th	12th	9th	10th	11th	12th
1	.84	.85	.73	.69	.83	.82	.73	.61
2	3.47	2.65	1.54	2.13	3.07	1.21	2.78	5.14
3	9.57	5.15	4.85	7.85	8.54	6.56	5.80	8.24
4	26.16	23.60	31.83	28.23	26.03	22.48	22.44	22.63
6	13.91	9.77	6.98	6.14	13.32	7.85	8.87	8.70
8	1.39	1.22	1.49	1.39	.75	.65	1.18	1.24
9	2.31	2.74	2.55	1.98	2.43	3.10	2.77	2.91
10	7.34	3.28	2.33	2.37	3.35	2.15	3.40	3.52
11	5.64	6.08	6.05	5.81	4.35	5.85	5.36	5.52
12	2.54	2.95	2.78	3.06	2.56	3.50	2.87	2.63
13	.78	.83	.89	.95	.87	1.04	1.00	.95
15	.66	.73	1.56	1.06	.69	.76	.49	.57
18	1.27	1.37	1.53	1.30	1.75	1.59	1.56	1.48
19	2.18	1.90	2.27	2.33	2.02	2.01	2.08	1.99
20	1.69	1.35	1.17	.95	1.44	1.41	1.09	1.12
21	1.21	1.02	1.04	1.11	1.15	.89	1.13	1.09
22	1.54	1.31	1.40	1.34	1.15	1.45	1.26	1.28
23	1.66	1.74	1.64	1.56	1.51	1.61	1.58	1.59
24	1.82	1.40	1.56	1.63	1.42	1.63	1.54	1.55
25	1.86	1.77	1.84	1.88	1.68	1.77	1.56	1.85
26	1.55	1.85	1.69	1.71	1.50	1.66	1.22	1.62
27	1.83	1.67	1.53	1.60	1.54	1.37	1.56	1.63
28	1.96	1.75	1.84	1.84	1.95	1.39	1.92	1.68
29	1.93	1.63	1.85	1.79	1.59	1.51	1.85	1.88
30	1.52	1.54	1.47	1.63	1.47	1.76	1.13	1.36
31	1.58	1.68	1.29	1.43	1.83	1.63	1.58	1.20
32	1.16	1.24	1.27	1.52	1.63	1.31	1.25	1.14
33	1.93	1.72	1.77	1.82	1.71	1.93	1.79	1.94
34	1.92	1.84	1.85	2.03	1.82	1.72	1.74	1.86
35	1.78	1.45	1.40	1.64	1.80	1.54	1.69	1.76
36	1.53	1.62	1.41	1.40	1.67	1.43	1.09	1.25
37	1.93	1.68	1.29	1.43	1.89	1.65	1.58	1.20
38	1.97	1.79	1.79	1.68	1.58	1.84	1.83	1.79
39	1.07	1.42	1.54	1.26	1.52	1.58	1.47	1.43

TABLE 30

Means, Standard Deviations, and Number of Dyads by Cell
by Pupil Pattern with Teacher Pattern A

Cell Number	Pupil Pattern 1			Pupil Pattern 2			Pupil Pattern 3		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
1	6.51	3.50	122	6.68	3.33	126	6.58	3.26	132
2	7.10	3.30	143	6.93	3.37	140	6.93	3.29	144
3	6.67	3.13	115	7.17	3.46	123	7.40	3.52	132
4	7.22	3.35	158	6.90	3.29	165	6.81	3.32	158
5	6.78	3.07	140	6.57	3.24	137	6.66	3.30	140
6	7.37	3.30	135	7.49	3.14	135	7.55	3.26	141
7	7.20	3.43	149	7.08	3.20	128	6.50	3.07	126
8	6.66	3.27	145	6.87	3.38	143	7.21	3.33	155
9	7.30	3.19	134	7.04	3.10	132	7.14	3.29	129
10	7.13	3.13	134	7.20	3.25	130	7.07	3.22	133
11	7.21	3.28	131	6.86	3.18	124	7.05	3.17	122
12	6.43	3.26	148	6.90	3.37	137	6.74	3.29	131
13	7.04	3.45	125	7.38	3.50	126	7.31	3.33	120
14	6.93	3.23	149	6.95	3.17	155	7.02	3.15	143
15	6.71	3.21	111	6.77	3.29	125	6.83	3.31	126
16	7.25	3.22	148	6.92	3.15	154	6.80	3.23	155

TABLE 31

Means, Standard Deviations, and Number of Dyads by Cell
by Pupil Pattern with Teacher Pattern 8

Cell Number	Pupil Pattern 1			Pupil Pattern 2			Pupil Pattern 3			Pupil Pattern 4		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
1	7.08	3.44	155	6.68	3.40	164	6.85	3.40	162	6.54	3.49	[illegible]
2	7.17	3.11	120	7.33	3.34	129	7.27	3.24	130	7.10	3.18	[illegible]
3	6.05	3.33	134	6.23	3.30	141	6.45	3.40	146	6.48	3.41	[illegible]
4	7.34	3.28	128	7.37	3.26	127	7.22	3.26	132	7.27	3.29	[illegible]
5	6.97	3.31	149	7.16	3.37	147	7.17	3.41	151	7.11	3.24	150
6	6.94	3.51	140	6.85	3.17	126	6.67	3.12	138	6.72	3.20	125
7	6.69	3.28	147	6.57	3.37	144	6.43	3.34	148	6.44	3.31	138
8	7.50	2.93	133	7.46	3.02	126	7.83	3.03	126	7.74	3.15	130
9	6.46	3.12	147	6.77	3.19	134	6.90	3.14	130	6.74	3.19	130
10	6.86	3.35	125	6.78	3.39	118	6.94	3.46	121	7.09	3.42	135
11	7.37	3.30	[illegible]	7.08	3.29	150	6.88	3.25	140	6.90	3.37	[illegible]
12	7.32	3.05	118	7.37	2.99	121	7.28	3.12	130	7.31	2.97	[illegible]
13	6.94	3.22	126	6.63	3.12	132	6.49	3.11	134	6.64	3.33	[illegible]
14	6.89	3.12	152	6.89	3.20	164	6.99	3.27	148	6.53	3.28	143
15	6.96	3.50	134	7.28	3.47	137	7.45	3.43	138	7.36	3.35	138
16	7.25	3.30	121	7.23	3.27	127	7.07	3.10	113	7.10	3.10	123

Student's Preference
and
Opinion Inventory

This inventory is designed to be entirely self-administered so that you may work independently of the teacher and the other students about you. Make every effort to understand the directions so that questions will be unnecessary. If it is necessary to ask for help raise your hand and the teacher will come to you.

DIRECTIONS To the right on this page you will find a list of the teachers at Riviera Beach High School. Read through the list carefully and draw a line through each teacher that you have NOT had. It is important to be accurate because the remaining names will be used later in the inventory.

When you have completed this page, the only unmarked names should be those staff members who have been your teachers here at Riviera Beach High School.

LIST OF RIVIERA BEACH HIGH SCHOOL FACULTY

1 Allison Sharon
2. Anderson Phillip B
3 Bateman Frank S.
4. Barrat, Larry R
5. Betts Leslie D
6. Brandenburg Eugene E.
7 Bergson, Gerald
8 Callahan, Walton
9 Campo Clyde A.
10 Daniels James
11 Dean, Marve D
12 Dennis, Elizabeth E.
13 DeRozza David
14 DiPasquale, Gertrude C
15. Dos Joyce A.
16. East Louise
17 Fery James W
18. Fossett Winston
19 Frankfurth Stephen D
20. Freeman, Zephyr K
21 Goode William
22. Hamrick Nell M
23 Hamilton, Alan A.
24 Isere Sharon S.
25 Jameson, Sue
26 Knowles, Lincoln C
27 Kreyes Dorothy
28 LeVitre, Mary J
29 Lewis Hazel C.
30 Lovely Martha B
31 Longyear Cecile A.
32 Martin, James
33 McAnally Henrietta C
34 McMahon, Carl H
35 Mendrowas, Marie L.
36 Miller Dorothea B
37 Morey Robert F
38. Neal Mickey T
39 Peyback Charles B
40 Pyle, Libby
41 Ornstein, Harry A
42 Powell Lena
43. Reel, Jan M.
44 Sauer Frank A
45 Scrambler Glenn A
46. Shuttleworth Amanda L
47 Talbott Byron B
48 von Uhrich Jr. Rudolph
49 Watson Susan S
50 Watson Thomas H
51 Wheelehan Marion L
52 White James R.
53. Wilson Martha S.
54. Wright Judith
55. Zacharias Ruth C

REMEMBER When you are asked to refer to a teacher do so with the number by the teacher's name. Continue on through this booklet, reading the instructions and carefully answering the questions, until you have completed all the pages.

READ DIRECTIONS BEFORE STARTING

DIRECTIONS: In the following pages, you will find a series of questions which you are to answer carefully and honestly. This is part of a research study being done at the University of Florida, and these inventories will be picked up by the researcher and taken back to Gainesville. No one on the staff will see your answers or have access to the information you give. Even if someone reads the final report of this research, it would not be possible to identify individuals.

The importance of sincere and honest answers cannot be overstressed.

The first set of questions deals with information about you and your family. Either mark out the correct answer or fill in the blank to answer each item.

MARK ALL ANSWERS ON THE

RED ANSWER SHEET

PLEASE MARK EVERY ITEM

Sex A—(male) B—(female).

Grade level C (ninth) D (tenth) E (eleventh) F (twelfth)

Number of years you have attended Riviera Beach High School.
G—(one) H—(two) I (three) J (four)

Age. Fill in [illegible]

Date of birth. Fill in the [illegible]

Place of birth. Fill in the [illegible]

Fill in [illegible]

Do you live with both your parents?

If not, do you live with one parent [illegible]

Number of living [illegible]
A—(none) B (one) C [illegible]

Number of living [illegible]
K—(none) L [illegible]

Number of living [illegible]
P (none) Q [illegible] T (four) [illegible]

Your father's age — If you are not sure, make the best guess you can. Fill in [illegible]

Your mother's age — If you are not sure, make the best guess you can. Fill in [illegible]

Father's (or principal wage earner's) occupation. Fill in [illegible]

Does your mother work outside the home?

If yes, mother's occupation. Fill in [illegible]

CONTINUE ON [illegible]

PLEASE MARK

What teacher would you LEAST prefer to have?

When you did have the teacher, what subject did the person teach?

Which teacher would be your second choice?

When you did have the teacher, what subject did the person teach?

Who is the principal of Riviera Beach High School? (use number)

Who are the really outstanding teachers that you have had while attending Riviera Beach High School?

Please notice that you may select as many as seven teachers here or you may select none. If you can name more than seven, select the seven most outstanding teachers. If you feel there are none, put a zero (0) in the circle.
On the line below that line in which you wrote a teacher's number put the subject that the teacher taught you.

(1) Teacher Number
Subject
(2) Teacher
Subject
(3) Teacher
Subject
(4) Teacher
Subject
(5) Teacher
Subject
(6) Teacher
Subject
(7) Teacher Number
Subject

CONTINUE ON TO NEXT PAGE

PLEASE MARK EV[illegible]

Do you now have, or have you had in the past six months, a steady job.

What is the highest grade your father attended at school. ____ No. [illegible]
IF YOUR FATHER ATTENDED CO[illegible]

What is the highest grade your mother attended at school.
IF YOUR MOTHER ATTENDED CO[illegible]

Do you plan to go to college. ____

When you complete your education, what occupation do you plan to enter. ____

DIRECTIONS: For the next several questions, you will choose teachers from the list you marked on Page One. You will NOT have to write the teacher's name. Instead, you are to use the number next to the teacher's name. DO NOT use teacher's that you have only for study hall or homeroom. In these first questions, CONSIDER ONLY those teacher which you have this year.

Which of your current teachers most effectively presents the material [illegible] forced way which teacher best presents things so they make the most sense [illegible]

Which of your current teachers would you rate second best? ____

Which of your current teachers would you rate third? ____

Which of your current teachers would you rate fourth? ____

Which of your current teachers would you rate fifth? ____

Which of your current teachers would you rate sixth? ____

In the remainder of these questions, CONSIDER ALL the teachers [illegible] had at [illegible] Beach High School.

If you liked all subjects equally well, which teacher out of all that you [illegible] Beach High School would you prefer? ____

When you did have the teacher what subject did he te[illegible] ____

Which teacher would be your second choice? ____

When you did have the teacher what subject did the person teach? ____ CONTINUED ON NEXT PAGE

PLEASE MARK EVERY ITEM

There are certain things which all students should learn while in school regardless of what their future plans are. (Grammar, some history, math, government, reading, etc. [illegible])

When it comes to differences of opinion in religion, we must be careful not to compromise with those who believe differently from the way we do.

Unfortunately, a good many people with whom I have discussed important social [illegible] problems don't really understand what's going on.

It is often desirable to reserve judgment about what's going on until one has had [illegible] hear the opinions of those one respects.

Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

While I don't like to admit this even to myself, my secret ambition is to become a great man like Einstein, or Beethoven, or Shakespeare.

In times like these, it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

Assigning seats to students rather than letting them sit where they wish is a good way for the teacher to maintain proper discipline.

In a heated discussion, I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.

[illegible] should handle their own disciplinary problems and should tolerate [illegible] sending them to the office.

It is only natural that a person would have a much better acquaintance with ideas [illegible] than with ideas he opposes.

A person who gets enthusiastic about too many causes is likely to be a pretty [illegible] sort of person.

The worst crime a person could commit is to attack publicly the people [illegible] same thing he does.

In this complicated world of ours, the only way we can know what's going on is to rely on leaders or experts who can be trusted.

In the long run, the best way to live is to pick friends and associates whose [illegible] are the same as one's own.

If a man is to accomplish his mission in life, it is sometimes necessary [illegible] or nothing at all."

Teachers should be quick to respond to students when they ask a [illegible] with good taste.

There are two kinds of people in this world: those who are for the truth and those who are against the truth.

In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

Regular class recitation builds confidence in the students and helps [illegible] better speakers.

Of all the different philosophies which exist in this world, there is probably only one which is correct.

CONTINUED ON [illegible]

PLEASE MARK EVERY ITEM

In early courses, the grammar and spelling in classwork and homework should affect the grade given.

In the history of mankind, there have probably been just a handful of really great thinkers.

A group which tolerates too much difference of opinion among its own members cannot exist for long.

Requiring extra schoolwork from students who misbehave is a proper and effective form of discipline.

In times like these, a person must be pretty selfish if he considers primarily his own happiness.

The lowering of a student's grade is an effective and fair means of punishing misbehavior.

I commonly wonder what hidden reason another person may have for doing something nice for me.

Schoolwork that is handed in early should be graded just a little bit easier because it was early.

There are a number of people I have come to hate because of the things they stand for.

The proper amount of homework can be the best means to understand class work.

The present is all too often full of unhappiness. It is only the future that counts.

Teachers should attempt to understand individual student's personal problems.

It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

A teacher should devote most of the class time to individual students.

Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

If given the chance, I would do something of great benefit to the world.

The superior students should be expected to do more for the same grade than their classmates.

I'd like it if I could find someone who would tell me how to solve my personal problems.

If I let people see the way I feel, I'd be considered a hard person to get along with.

Movies, filmstrips, and other audiovisual equipment should be used whenever possible.

A man who does not believe in some great cause has not really lived.

Movies, filmstrips, and other audiovisual equipment are now being used too much.

CONTINUE ON TO NEXT PAGE

PLEASE MARK [illegible]

A person who thinks primarily of his own happiness is beneath contempt.

The main thing in life is for a person to want to do something important.

If I have to resort to physical violence to defend my rights, I will.

If students were given more creative school work, they would learn much more.

My blood boils whenever a person stubbornly refuses to admit he's wrong.

When someone is bossy, I do the opposite of what he asks.

Even when my anger is aroused, I don't use "strong language."

I can't help being a little rude to people I don't like.

When people are bossy, I take my time just to show them.

I am irritated a great deal more than people are aware of.

If someone doesn't treat me right, I don't let it annoy me.

Most people just don't give a "damn" for others.

I generally cover up my poor opinion of others.

I seldom strike back, even if someone hits me first.

It depresses me that I don't do more for my parents.

I can think of no good reason for ever hitting anyone.

I get into fights about as often as the next person.

Man, on his own, is a helpless and miserable creature.

Fundamentally, the world we live in is a pretty lonesome place.

Most people just don't know what is good for them.

If somebody hits me first, I let him have it.

I often find myself disagreeing with people.

CONTINUE [illegible]

[illegible]

I carry a chip on my [illegible]

I don't know any people [illegible] right here.

Students are being given more [illegible] work.

Failure gives me a feeling of [illegible]

It is better to be a dead hero than a live coward.

Once I get wound up in a heated discussion, I just can't stop.

Schoolwork that is handed in late should be graded down because it was late.

The quieter the class, the better the teacher can do the job of teaching.

I hate those people who [illegible] day that we came to [illegible]

There is so much to be done and so little time to do it in.

I have had thoughts which make [illegible] feel ashamed of myself.

It is only natural for a person to [illegible] rather fearful of the future.

The United States and Russia have just about nothing in common.

If somebody annoys me, I am apt to tell him what I think of him.

I often find that I have not lived the right kind of life.

When I disapprove of my friends' behavior, I let them know it.

Most people just don't know what's good for them.

When I am mad at someone, I will give him the "silent treatment."

I don't let a lot of unimportant things irritate me.

Paddling is an essential [illegible] being a satisfactory [illegible]

When I really lose [illegible] capable of slapping [illegible]

Although I don't [illegible] mixed up with [illegible]

PLEASE MARK EVERY IT

It is better to be a dead hero than to be a live coward.

I do many things that make me feel ashamed and sorry afterward.

When I get mad, I say nasty things.

I often feel like a powder keg ready to explode.

When I am angry I [illegible] blame them.

I am always patient with others.

PLEASE COMPLETE LAST
QUESTIONS ON RED
ANSWER SHEET BELOW

1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	YES NO	A B
1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6		☐	C D E F
1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	☐	G H I J
1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6			☐
1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6		YES NO	
1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐		/ / MO DAY YEAR
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	○		CITY
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6			
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	☐	STATE
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	☐	YES NO
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	☐	YES NO
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐		
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6		☐	A B C D E F
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	☐	H I J K L M N
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐	☐	P Q R S T U V
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	☐		☐
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6			
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6		☐	☐
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6			
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6			
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6		☐	YES NO
	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6			

List your five best friends who attend Riviera Beach High School. Please give first and last names in the order and do NOT use nicknames. Beside each name put the grade each person is in.

FIRST LAST GRADE

______________________ ________

______________________ ________

______________________ ________

______________________ ________

______________________ ________

This information which you have given us will be more valuable if you will give your name. You may leave the space below blank if you wish, but by giving your name we shall be able to make use of other data which are available in the school files. No one but the staff of Riviera Beach High School staff member will have access to this information.

Name (optional)

____

FIRST MIDDLE LAST

BIOGRAPHICAL SKETCH

Jess Patten Elliott was born September 13, 1938, in Pahokee, Florida. In June, 1956, he was graduated from Pahokee High School. He attended the University of Florida and graduated in August, 1962, with a Bachelor of Arts in Education with a major in history. Mr. Elliott received his Master of Education degree in August of 1963 with a major in Educational Foundations and a minor in history.

Mr. Elliott was employed in 1966 by the Atlanta (Ga.) City Schools as a research associate for the purpose of evaluating the effectiveness of educational programs funded by ESEA, Title I. In 1968 he assumed his present position of Coordinator of Evaluation in the Georgia State Department of Education where he is responsible for the evaluation of ESEA, Title I and Title III programs across the state.

He is a member of the American Educational Research Association, Florida Educational Research Association, Kappa Delta Pi, Phi Kappa Phi, and Chi Phi. He is married to the former Sharon Van Dame and has three children.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Education and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Education.

March, 1970

Dean, College of Education

Harold C Hanson

Dean, Graduate School

Supervisory Committee

Chairman

William B. Ware